

# Draft Programmatic Environmental Impact Statement

For  
The  
Integrated  
Resource  
Management  
Plan

k'wne'  
chstqhessiple'  
hnhkhwkhwlstsutnet

“The future course  
of our renewal”



Coeur d'Alene Tribe  
Natural Resource Department  
850 A Street  
P.O. Box 408  
Plummer, Idaho 83851  
September 2005

**Cover photos:** (top) Historic Photo #1857: Men on horses in DeSmet (*Coeur d'Alene Tribe/Courtesy of Fr. Thomas Connelly, S.J.*); (bottom) Plummer Butte (*Courtesy Alison Meyer*)





# **Coeur d'Alene Tribe Integrated Resource Management Plan**

k'wne' chstqhessiple' hnkhwlkhwlstsutnet  
"The future course of our renewal"

## **Draft Programmatic Environmental Impact Statement (DPEIS)**

**September 2005**

Coeur d'Alene Tribe

Bureau of Indian Affairs

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Chief J. Allan  
Chairman

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Debra Rosenbaum  
Plummer Agency

# **Draft Programmatic Environmental Impact Statement (DPEIS) Coeur d’Alene Tribe Integrated Resource Management Plan**

**Prepared by:**            **Coeur d’Alene Tribe and  
processed through the Bureau of Indian Affairs  
Coeur d’Alene Indian Reservation  
Plummer, Idaho**

## **Abstract:**

The Coeur d’Alene Tribe is developing a programmatic level recommendation for land use, natural resource enhancement and protection, residential/commercial growth and development planning, and cultural preservation for the Coeur d’Alene Reservation. The Tribe is also developing programmatic level recommendations for the management of natural, cultural and environmental resources for the Tribe’s aboriginal territory.

Input from an Interdisciplinary Team (IDT), Community Advisory Committee (CAC), the public, and government agencies has been used to establish both 100-year desired future conditions and 20-year management goals. These desired future conditions and goals have been developed for the IRMP resource categories and are assessed and compared in this DPEIS. The desired future condition for the Reservation is to maintain its current rural character.

A Preferred Alternative was developed to protect the natural and cultural environment while supporting overall social and economic needs. The Preferred Alternative is a combination of the agencies’ and public’s long-term vision for the Coeur d’Alene Reservation based on IDT, CAC, and public input. Specific alternative elements, desired future conditions and specific resource goals are discussed in Chapter 2, Alternatives Including the Proposed Action.

This DPEIS complies with the National Environmental Policy Act (NEPA) as set forth in 40 CFR Part 1500 through 1508. This DPEIS also complies with the U.S. Department of Interior (USDI) Bureau of Indian Affairs (BIA) regulations set forth in 516 Departmental Manual (DM) 6, Appendix 4 [61 Federal Register 67845 (1996)]. Additionally, it follows the BIA policy regarding protection and enhancement of environmental quality, as published in 30 Bureau of Indian Affairs Manual (BIAM) Supplement 1. The USDI BIA is the federal agency responsible for this DPEIS.

## ***For Further Information Contact:***

Tiffany Allgood, EAP Coordinator  
Coeur d’Alene Tribe  
P.O. Box 408, 850 A Street  
Plummer, ID 83851  
208-686-8802; tallgood@cdatribe-nsn.gov

Debra Rosenbaum, Superintendent  
Bureau of Indian Affairs, Plummer Agency  
P.O. Box 408, 850 A Street  
Plummer, ID 83851  
208-686-1887

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# Chapter 1

## Purpose of and Need for Action



Schitsu'umsh: Those who were found here. The discovered people. July 4th Celebration, 1922

*From time immemorial the old ones walked here; those yet unborn will walk here too. The Schitsu'umsh presence here on the Reservation and within our ancient homelands has existed since the beginning of time. Every Tribal member knows and feels the links to generations past and understands the connection with those yet to come. Our traditions and culture continue to develop as they have for thousands of years in this place. In the faces of Tribal members today, you see the images of our ancestors*  
(CD'A Tribe).

### 1.0 Introduction

Since time immemorial, the Coeur d'Alene River Basin of the western Rocky Mountains has been home to the Coeur d'Alene Tribe. The Coeur d'Alene Tribe exercised inherent power deriving from its sovereign status, long before the advent of European discovery of the Americas. The Tribe

has always possessed the inherent sovereign authority to govern itself and determine its own destiny. In 1873, the Tribe gave up its claims to more than three million acres of its aboriginal territory and the Tribe's first reservation was established by Executive Order of President Ulysses S. Grant. The 1873 executive order and subsequent agreements with the United States for further cessions of Tribal territory in 1889, 1894 and 1897, all recognized the Tribe's inherent sovereign authority. In 1947 the Tribe adopted its constitution, pursuant to the Indian Reorganization Act of 1934, and since that time has functioned under a governmental system responsible for the health, welfare and safety of its members and for the protection of Tribal assets and natural resources. The Tribe is a federally recognized Indian Tribe and continues to exercise its inherent sovereign authority, altered only by its government-to-government relationship with the United States. (Appendix A contains a history of the Coeur d'Alene Tribe).

The Coeur d'Alene Tribe (Tribe) has established goals to protect the cultural and environmental values of the Coeur d'Alene Tribe. Specifically, the goals of the Tribe's Natural Resource Department are to preserve, protect, enhance and manage the natural resources, improve the quality of life, and to provide social and economic benefits across the Reservation and the Tribe's aboriginal territory.

Based on the outcome of the decision process in this Draft Programmatic Environmental Impact Statement (DPEIS), the Coeur d'Alene Tribe will develop an Integrated Resource Management Plan (IRMP). The IRMP will, in turn, provide management guidance for the Tribe's natural, environmental and cultural resources.

The IRMP DPEIS focuses on the Coeur d'Alene Reservation, which is 334,471 acres, not including Tribal submerged lands (Figure 1.0, Coeur d'Alene Reservation Map). Land use recommendations, 100-year Desired Future Conditions and individual resource 20-year goals for the Reservation will be established and assessed. To a lesser extent, the IRMP DPEIS focuses on the Tribe's aboriginal territory by outlining broad 100-year Desired Future Conditions for landscape and cultural resources. The Tribe's aboriginal territory is over 5 million acres (Figure 1.1, Aboriginal Territory Site Location Map).

The IRMP, in conjunction with the Coeur d'Alene Tribal Comprehensive Plan (in draft) and related plans, will be used to recommend land use on the Reservation for the next 20 to 100 years in a way that meets both public use and resource management needs. The IRMP ultimately adopted by the Coeur d'Alene Tribal Council will address the resource issues, concerns, and goals identified by the public, and provide the critical guidance needed to more efficiently and effectively manage the unique and diverse resources found within the Coeur d'Alene Reservation and the Tribe's aboriginal territory.

The purpose of the DPEIS and the NEPA process is to evaluate impacts of the preferred and alternative actions. This DPEIS has been prepared to inform decision makers and the public of the impacts associated with each of the considered alternatives. It focuses on the issues and concerns identified by the public and resource agencies during initial scoping and subsequent public involvement activities.

The proposed action is to develop an Integrated Resource Management Plan for Coeur d'Alene



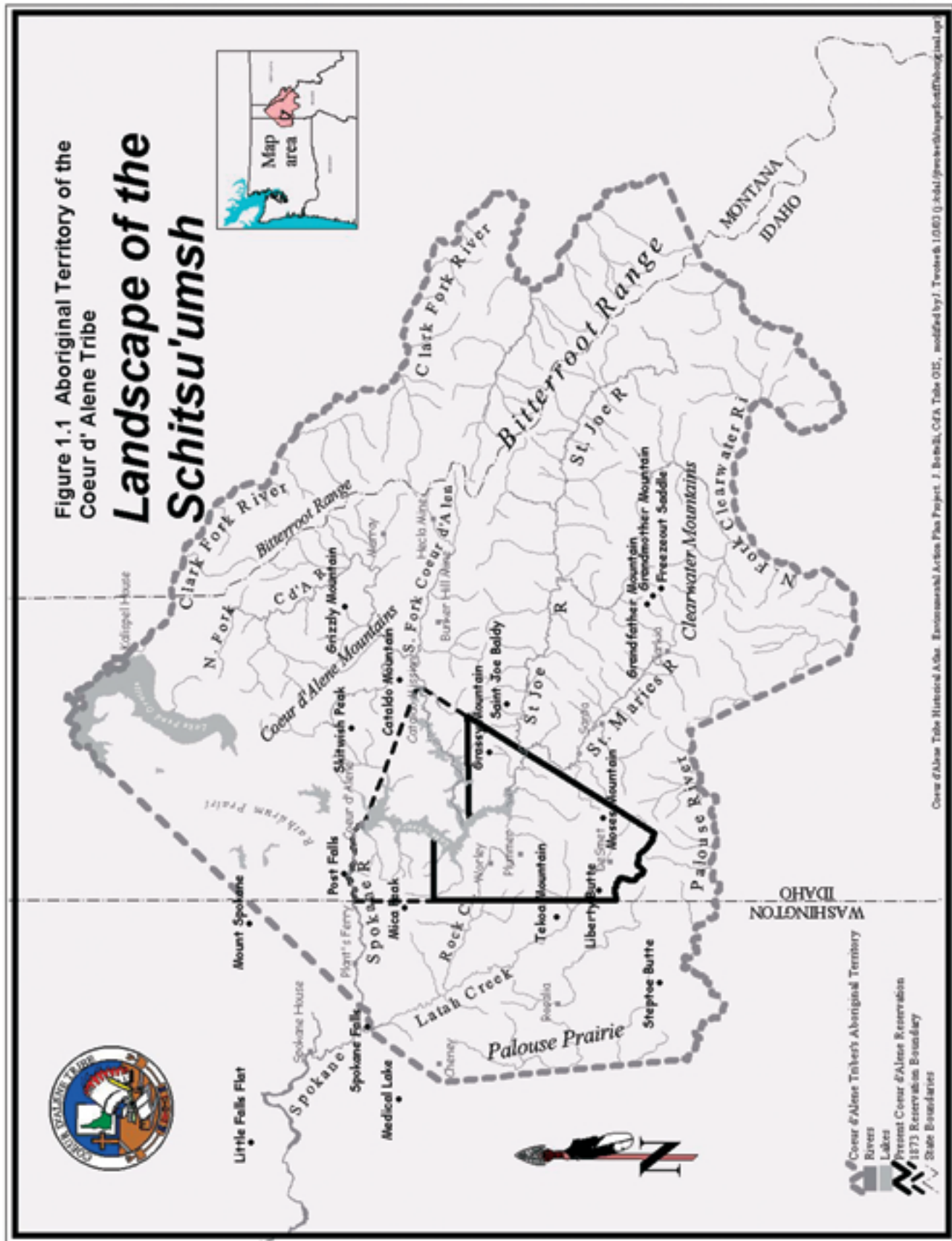


Figure 1.0  
Coeur d'Alene Reservation



1:50,000 Coeur d'Alene Data Set 10/18/99  
revised by J. T. Smith (10/18/99)

Figure 1.1 Aboriginal Territory of the  
Coeur d'Alene Tribe  
**Landscape of the  
Schitsu'umsh**





Tribal resources. The Tribe has utilized Federal funding from the U.S. Department of the Interior Bureau of Indian Affairs, U.S. Environmental Protection Agency and the U.S. Department of Health and Human Services to develop the IRMP DPEIS. A related proposed action is to tier the Tribe's Forest Management Plan and a potential future Agricultural Resources Management Plan to the Tribe's IRMP, as well as other more specific Tribal resource management plans.

This DPEIS complies with the National Environmental Policy Act (NEPA) as set forth in 40 CFR Part 1500 through 1508. This DPEIS also complies with the U.S. Department of Interior (USDI) Bureau of Indian Affairs (BIA) regulations set forth in 516 Departmental Manual (DM) 6, Appendix 4 [61 Federal Register 67845 (1996)]. Additionally, it follows the BIA policy regarding protection and enhancement of environmental quality, as published in 30 Bureau of Indian Affairs Manual (BIAM) Supplement 1. The USDI BIA is the federal agency responsible for this DPEIS.

## **1.1 Environmental Action Plan (EAP) Project**

The Coeur d'Alene Tribe's Environmental Action Plan (EAP) Project was initiated to coordinate the identification, assessment and management of environmental concerns on and near the Coeur d'Alene Reservation. There are three phases of the EAP Project:

- \* Phase I: Assessment of Environmental Concerns—completed (Appendix B contains the final Risk Ranking of the list of environmental concerns)
- \* Phase II: Development of an Environmental Management Plan—in progress
- \* Phase III: Implementation of the Environmental Management Plan

This DPEIS is a step in Phase II of the EAP Project. It provides an assessment of NEPA alternatives and documents the selection process. The common goals for the EAP Project and the IRMP are to:

- \* Improve local environmental conditions to benefit human health, ecology and quality of life
- \* Involve the public throughout the development of the plan
- \* Provide tools for Tribal and community environmental planning and action, as well as to other programs and planning activities
- \* Increase communication and cooperation to improve environmental management with Tribal community and departments, and local, state, and federal governments

The specific goals for the IRMP (Phase II of the EAP Project) are to:

Preserve, protect, and enhance natural, cultural and environmental resources across the Reservation and aboriginal territory:

- \* To the extent possible, restore natural, cultural and environmental resources across the Reservation and aboriginal territory

- \* Emphasize the history and culture of the Coeur d'Alene Tribe
- \* Work cooperatively to improve the quality of life, providing direct social and economic benefits for the Tribe

This DPEIS does not assess the impact of historic mining and/or milling activities on or near the Coeur d'Alene Reservation or the Coeur d'Alene River. The Natural Resource Damage Assessment being undertaken by the Tribe and the United States is addressing mining- and/or milling-related resource impacts independent of the EAP Project.

## **1.2 Purpose and Need**

The Coeur d'Alene Reservation and aboriginal territory have a rich assembly of natural, cultural and environmental resources. The Reservation and surrounding lands support a diversity of vegetation for agriculture, forestry, wildlife, riparian habitat, and wetland complexes. The Coeur d'Alene Reservation was reserved out of the Tribe's aboriginal territory to serve the social, economic and environmental needs of the Coeur d'Alene Tribe. A management plan is needed to ensure that Tribal resources are protected and balanced with an increasing demand for development. An Integrated Resource Management Plan will also assist in the development or updating of other plans, codes, or ordinances that affect the Reservation.

## **1.3 Preferred Alternative**

The Coeur d'Alene Tribe is developing a programmatic level recommendation for land use, natural resource enhancement and protection, residential/commercial growth and development planning, and cultural preservation for the Coeur d'Alene Reservation. The Tribe is also developing programmatic level recommendations for the management of natural, cultural and environmental resources for the Tribe's aboriginal territory.

Input from an Interdisciplinary Team (IDT), Community Advisory Committee (CAC), government agencies and the public has been used to establish both 100-year desired future conditions and 20-year management goals. These desired future conditions and goals have been developed for the IRMP resource categories and are assessed and compared in this DPEIS. The overall desired future condition for the Reservation is to maintain its current rural character.

A Preferred Alternative was developed to protect the natural and cultural environment while supporting overall social and economic needs. The Preferred Alternative is a combination of the Tribe's and public's long-term vision for the Coeur d'Alene Reservation based on IDT, CAC, and public input. Summaries of the elements of the Preferred Alternative are listed below. Specific alternative elements, desired future conditions and specific resource goals are discussed in Chapter 2, Alternatives Including the Preferred Alternative.

The selected Preferred Alternative is Alternative B, Stqhesiple' Integrated Resource Alternative. The following are some of the main elements of Alternative B:



### ***Landscape (Aboriginal Territory and Reservation)***

- \* Increase Tribal involvement regarding land use changes and development.
- \* Restore and maintain native species biodiversity across the aboriginal territory, including the Reservation.
- \* Provide for the sustainable use of natural resources.

### ***Culture (Aboriginal Territory and Reservation)***

- \* Preserve, protect, manage, and enhance Tribal culture including sacred areas and elements, culturally significant sites, historically important sites, and traditional uses of the landscape.

### ***Natural Environment (Reservation)***

- \* Improve and maintain air quality.
- \* Restore and maintain habitat for wildlife and fish including wildlife corridors, habitat connectivity, riparian and wetland habitat, and shoreline habitat.
- \* Restore, protect and maintain water quality and quantity.
- \* Restore and maintain forest health.
- \* Restore and maintain habitat components in agricultural areas.
- \* Restore and maintain native species' biological diversity.

### ***Human Environment (Reservation)***

- \* Limit and discourage residential growth and development in non-suitable and culturally/ecologically significant areas.
- \* Identify and recommend areas for growth and development.
- \* Improve and manage Coeur d'Alene Lake in concert with cultural and ecological values.
- \* Improve and cooperate in planning an infrastructure that supports growth in identified areas with minimal impacts to the environment.
- \* Work to improve environmental/public health and safety programs for food, chemical use, hazardous waste, solid waste, and energy.

## **1.4 Concerns and Issues From Scoping**

A Notice of Intent to prepare the Programmatic Environmental Impact Statement (PEIS) appeared in the Federal Register, Volume 67, Number 182 on September 19, 2002. An early and open public and agency scoping process identified the management issues, concerns and needs to be addressed in the IRMP DPEIS. Information was diligently gathered through public workshops, public meetings, and ongoing consultations with local, state and federal agency personnel. Prior to

the NEPA scoping process, several public meetings were held for input into the Environmental Action Plan Assessment and the Integrated Resource Management Plan (See Appendix C for details on public involvement). Relevant information obtained during the meetings and workshops and obtained from communications is included in the assessment of the alternatives in this DPEIS. Following are the concerns identified in the EAP process, IRMP future focus workshops, the IRMP scoping meetings and the public involvement meetings. These concerns are listed in the form of a problem statement.

### **1.4.1 *Concerns***

Throughout the document, information will be presented in a consistent format, which will always begin with the broad scale, or landscape. The Landscape resource category includes all of the Reservation lands and the aboriginal territory, more than 5,000,000 acres in total.

The Culture resource category includes the Coeur d'Alene Tribe's traditions, subsistence, religion, and origins that are seamlessly interwoven into the natural environment. Impacts to the Coeur d'Alene Tribal culture will be assessed at the landscape scale.

The Natural and Human Environment categories will discuss individual resources within the boundaries of the Coeur d'Alene Reservation. Listed below are the major concerns identified from public feedback. These concerns have either been incorporated or resolved within the Preferred Alternative (See Chapter 2, Alternatives).

#### ***Landscape***

Biodiversity and forested land across the Reservation and aboriginal territory are being lost to development and recreation. Road building, timber harvesting, agricultural practices and other activities are decreasing fisheries and wildlife habitat. This, in turn, threatens the Tribe's ability to practice cultural and subsistence activities.

The Coeur d'Alene Lake shoreline is in danger of losing its ability to properly function as an ecological system due to recreation activities and over-development along the shorelines. Personal watercraft and boats are also affecting Coeur d'Alene Lake's water quality and increasing erosion.

#### ***Culture***

Culturally and archeologically significant resources are being lost through activities such as development.

Tribal history and culture are being adversely affected by the loss of cultural resources and native biodiversity throughout the Reservation and aboriginal territory.

Changes in land use and other human activities can cause the loss of biodiversity, decreasing cultural and subsistence uses of the Tribe's natural resources.

#### ***Natural Environment***

Introduction of non-native species are increasingly challenging the native biodiversity and ecology of the Reservation.

Changes in land use have affected soil productivity, fertility, and sediment discharge.

Air quality is being severely impacted from a combination of sources: agricultural, forest, slash, industrial, household waste burning, increase in vehicles, dust, and agricultural chemicals.

Mining (aggregate), agriculture, grazing, forestry, commercial and residential development, recreation, and road construction are effectively reducing biodiversity, wildlife habitat, habitat connectivity, riparian and wetland function and value, fish habitat and overall water quality and quantity.

The decline in fisheries is a major Tribal and public concern. This is related to water quality, vegetation, wetlands, and riparian health. The introductions of non-native species, development, and changes in hydrologic function have affected native fisheries, riparian habitat, and water quality.

Interruption of the natural fire regime, past forest management practices, introduction of a fungus (white pine blister rust), and other activities have decreased forest health and biodiversity, altered forest species composition and effectively eradicated the old growth forest on the Reservation.

### ***Human Environment***

Garbage dumping, littering, poor quality drinking water, and sanitation problems are apparent on the Reservation. With the increasing population on the Reservation, there is increasing concern over solid waste disposal activities. Among the identified problems, there are very few recycling opportunities, wastes have to be shipped to Montana or Kootenai County Farm Landfill for disposal, and there are few options for disposal of household hazardous waste and white goods (such as appliances).

Identified recreational issues to address include a lack of trails (motorized and non-motorized, paved and non-paved), a lack of desired facilities, user conflicts, congestion in particular areas, and environmental degradation due to dispersed camping and indiscriminate motorized travel and watercraft.

Attitudes toward all categories of development are varied, depending upon the extent, type and location of existing or potential development. There are concerns over the future character of the Reservation. Most people that commented want the rural quality of life maintained.

#### ***1.4.2 Issues***

Issues that could not be resolved in the Preferred Alternative due to varying opinions are the bases for additional alternative development. These issues are listed below.

- \* Increases in population and changing land use patterns affect natural and cultural resources, infrastructure needs, and the social and economic integrity of the area.
- \* The extent of development on the Reservation will have differing effects on biological diversity and social and economic needs.
- \* Existing cumulative impacts coupled with current growth rates will result in a loss of biological diversity that may not be reversible.

- \* These cumulative impacts and trends, if not addressed, will result in the loss of the Tribe's ability to maintain Tribal cultural and subsistence activities.

## 1.5 Consistency with other Plans, Permits, Authorizations, and Approvals

The level of detail and analysis in this DPEIS is relatively broad in scope. When appropriate, site-specific environmental compliance can be accomplished prior to initiating any major surface disturbing activities. When specific actions are considered, additional environmental evaluations will incorporate by reference the general discussions in this DPEIS and concentrate on the issues specific to the site. This approach is known as "tiering." The necessary environmental clearances and permits will be obtained prior to initiating construction activities.

The environmental planning, consultation, and impact assessment processes have been integrated to comply with applicable federal regulations. The applicable laws that would need to be reviewed for consistency or required for environmental clearance for future ground-disturbing projects are summarized below (Table 1.5) and detailed in Appendix D, Minimum Management Requirements.

**Table 1.5 Applicable Laws**

<i>Applicable Laws</i>	<i>Action</i>	<i>Permitting Agency</i>	<i>Reference</i>
<b>FEDERAL</b>			
Archaeological Resources Protection Act	Potential impacts to suspected or actual historic, archeological properties	U.S. Department of Interior (DOI) Bureau of Indian Affairs	16 U.S.C. §470aa-11 and 25 C.F.R. Part 262
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)	Designation of "Superfund" sites and clean-up	U.S. EPA (Not Applicable)	42 U.S.C. 9601 and 42 U.S.C. 11001
Clean Air Act	Permit needed if there is point source discharge into air	U.S. EPA	42 U.S.C. 7401
Federal Water Pollution Control Act (known as the Clean Water Act)	Section 9/10 and 404 permitting if any navigable water is to be obstructed, altered, or improved. Permitting is also required if discharge, dredge, or fill materials are to be introduced into waters of the US or adjacent wetlands. A permit is also needed to build bridges or causeways in navigable waters	U.S. Army Corps of Engineers	33 U.S.C. 1251

Endangered Species Act	Consultation required if waters are proposed to be modified or controlled. Potential impacts to plant or animal species listed as Threatened or Endangered	U.S. Fish and Wildlife Service	16 U.S.C. 1531
Federal Emergency Management Act	Any structure or activity that may adversely affect the flood regime of a stream within the flood zone	U.S. FEMA	42 U.S.C. 4001-4128 and 33 C.F.R. 320.4 (k), 40 C.F.R. 6.302, 44 C.F.R. 59-62, 64-68, 70-71, 75-77
Federal Insecticide, Fungicide and Rodenticide Act	Certification required for use of some pesticides	U.S. EPA	7 U.S.C. 136
Forest and Rangeland Renewable Resources Research Act	Restoration and enhancement of rangelands and forestlands converted into agricultural lands	U.S. Department of Interior	16 U.S.C. 1600 and 16 U.S.C. 1641
Hazardous Materials Transportation Act	Regulate the transportation of all hazardous materials including chemical and nuclear	U.S. Department of Energy	16 U.S.C. 12H (1994 and Supp I 1995)
Indian Agricultural Resource Management Act	Development and management of Indian agricultural lands	U.S. DOI Bureau of Indian Affairs	25 U.S.C. 3701
Indian Land Consolidation Act	Consolidation of Indian lands for contiguous Reservations	U.S. DOI Bureau of Indian Affairs	25 U.S.C. § 1701
Indian Mineral Leasing Act	Mining leases on Reservation lands	U.S. DOI Bureau of Indian Affairs	25 U.S.C. 396a-g C.F.R. Part 211
Indian Religious Freedom Act	Rights of Native Americans to practice traditional religions, have access to sites for ceremonial and traditional uses	U.S. DOI Bureau of Indian Affairs	42 U.S.C. 1996 & note
Land Conservation and Restoration Act	Provides for restoration and conservation of natural areas	U.S. Department of Interior	25 U.S.C. 466 [Grazing—25 C.F.R. Part 166]
Migratory Bird Treaty Act of 1918	Prohibits killing of designated migratory birds	U.S. Department of the Interior	16 U.S.C. 703-712
National Environmental Policy Act	Compliance with NEPA	U.S. DOI BIA and Council on Environmental Quality	42 U.S.C. § 4321 and 40 C.F.R. 1500
National Forest	Federal policy on manage-	Not Applicable	16 U.S.C. 1600,

Management Act	ment of federal forest lands		1611 to 1614
National Historic Preservation Act	Federal policy on preserving Historic Properties	U.S. Advisory Council on Historic Preservation	16 U.S.C. 470
National Pollutant Discharge Elimination System	Any discharge of potential pollutants into State or Tribal water bodies	U.S. EPA	33 U.S.C. 1342
National Indian Forest Resources Management Act	Requires management of Indian forest lands using principles of sustained yield and multiple use	U.S. DOI Bureau of Indian Affairs	25 U.S.C. 3101 and 25 CFR Part 163.11 (Public Law 101-630)
Native American Graves Protection and Repatriation Act	Protection of Native American graves and sites	U.S. DOI Bureau of Indian Affairs	25 U.S.C. 3001
Pacific Northwest Electric Power Planning and Conservation Act (aka Northwest Power Act)	Requires mitigation and enhancement of Columbia River fish and wildlife to offset impacts of hydro-electric damage	U.S. Dept. of Energy	Title 49 C.F.R. Parts 100–185
Resource Conservation and Recovery Act	Recovery of wetlands and other ecological features	U.S. EPA	42 U.S.C. 6901
Safe Drinking Water Act	Maintenance of safe drinking water. Limitation on where and what water can be used.	U.S. EPA	42 U.S.C. 300f
Soil and Water Resources Conservation Act of 1977	Reduction of sedimentation from land use practices that degrade water quality	U.S. Department of Agriculture	16 U.S.C. 2001
Surface Mining and Control Reclamation Act	Reclamation of lands that have been mined	U.S. DOI Bureau of Indian Affairs	30 U.S.C. 1201
Toxic Substances and Control Act	Regulate chemicals that present risk to health and environment	U.S. EPA	15 U.S.C. 2601
<b>TRIBAL</b>			
Smoke Management	Permit from the Tribe is required for agricultural field burning, prescribed fire management burning and landfill disposal site fires	Coeur d’Alene Tribe	Chapter 13 of the Coeur d’Alene Tribal Code
On-Reservation Hunting, Fishing & Trapping	Permit from the Tribe is needed to hunt on the Reservation (Tribal members need to have their Tribal Identification only)	Coeur d’Alene Tribe	Chapter 20 of the Coeur d’Alene Tribal Code

Off-Reservation Hunting, Fishing and Trapping	Permit from the Tribe is needed for Tribal members to hunt big game outside of the Reservation in the Tribe's aboriginal territory	Coeur d'Alene Tribe	Chapter 21 of the Coeur d'Alene Tribal Code
Boating on Tribal Waters	All vessels on Tribal waters need to be registered with the Tribe	Coeur d'Alene Tribe	Chapter 43 of the Coeur d'Alene Tribal Code
Encroachments	Permit from the Tribe is needed for all encroachments on the part of Coeur d'Alene Lake that is owned by the Tribe	Coeur d'Alene Tribe	Chapter 44 of the Coeur d'Alene Tribal Code
Firewood Cutting	Permit from the Tribe is needed for all firewood cutting on trust lands	Coeur d'Alene Tribe	Coeur d'Alene Tribal Resolution 231(2000)
Tribal Forest Management Plan	Management of Tribal Forest lands	Coeur d'Alene Tribe	Coeur d'Alene Tribe (2002)
Timber Harvesting on Trust Lands	Timber Cutting permit or Contracts	Coeur d'Alene Tribe and BIA	FMP and Periodic update, 25 CFR part 163

The Coeur d'Alene Tribe has several plans in progress or approved by the Tribal Council that the IRMP DPEIS is designed to be consistent with:

- \* Tribal Housing Authority Plan
- \* Tribal Transportation Plan
- \* Tribal Comprehensive Economic Development Strategy
- \* Tribal Forest Management Plan
- \* Tribal Fire Management Plan
- \* Tribal Environmental Health Plan
- \* Coeur d'Alene Tribal Comprehensive Plan (in draft)
- \* Coeur d'Alene Tribal Land Use Plan (in draft)
- \* Coeur d'Alene Tribal Community Development Plans (in draft)

## 1.6 Document Organization

This DPEIS documents the comparison of environmental consequences of four alternative management directions, including the Preferred Alternative that the Coeur d'Alene Tribe is considering for its IRMP.



***This document consists of the following main Chapters:***

***Summary***—This part of the document summarizes the entire IRMP DPEIS.

***Chapter 1***—Purpose of and Need for Action: Generally describes the purpose and need for action, summarizes issues from scoping and the Preferred Alternative, and briefly describes public involvement.

***Chapter 2***—Alternatives: Includes descriptions of the alternatives considered in detail, identification of the preferred alternative, a comparative summary of the environmental consequences, and a summary of the implementation, monitoring and amendment process.

***Chapter 3***—Affected Environment: Describes the existing resource conditions within the Reservation and aboriginal territory.

***Chapter 4***—Environmental Consequences: Describes the direct, indirect, and cumulative impacts of the various alternatives on environmental resources and indicators.

***Chapter 5***—List of Preparers: This chapter lists the names and qualifications of the people who prepared the DPEIS.

***Chapter 6***—List of Agencies, Organizations, and Persons to Whom Copies of the Statement Are Sent: This chapter contains a list of persons to whom this DPEIS was distributed and briefly describes public involvement throughout the planning process.

***Appendices (A-H)***

***A: History of the Coeur d'Alene Tribe:*** In this Appendix, a brief history of the Coeur d'Alene Tribe is included to provide a context for the IRMP DPEIS and the resulting IRMP.

***B: Summary of EAP Assessment Final Risk Rankings of Environmental Concerns:*** The Coeur d'Alene Tribe's EAP Assessment report (2000) assessed a list of 25 categories of environmental concerns and ranked the list of concerns for their risk to human health, ecology and quality of life.

***C: Public Involvement and Agency Consultation:*** Describes the steps taken to obtain public and agency input throughout the EAP/DPEIS process. Also contains the reports from the first IRMP public meetings, IRMP Future Focus Workshops and the IRMP Scoping meetings.

***D: Minimum Management Requirements:*** Describes each of the items in Table 1.5 Applicable Laws in more detail.

***E: Tribal Forest Management Plan Standards and Guidelines:*** Includes standards and guidelines from the Tribe's Forest Management Plan such as riparian standards and guidelines used on Tribal lands and recommended by the IRMP DPEIS alternatives to be applied on the Reservation.

***F: Implementation and Monitoring Plan:*** This Appendix contains a table that summarizes the IRMP alternative goals, indicators, whether or not indicator data is collected, which Tribal department and/or program is responsible for each goal and indicator data and whether or not the goal or data collection is currently funded.

***G: Integrated Resource Management Planning:*** This Appendix contains a conceptual recommendation of how decisions could be made in an integrated fashion, resulting in greater protection for natural, cultural and environmental resources.

***H: Species Lists:*** This Appendix contains species lists for the Reservation.

#### ***Acronym List and Glossary of Terms***

#### ***References***

# **CHAPTER 2**

## **Alternatives Including the Proposed Action**

### **2.0 Introduction**

The Coeur d'Alene Tribe is developing an Integrated Resource Management Plan to address the natural resources and environmental issues that were identified in the Tribe's *Environmental Action Plan (EAP) Assessment of Environmental Concerns on and near the Coeur d'Alene Reservation* report (2000). The National Environmental Policy Act (NEPA) requires that a range of alternatives be developed and compared in an effort to minimize environmental impacts of proposed alternatives. The range of alternatives included in this Chapter represent a diversity of perspectives on how the natural, environmental and cultural resources of the Coeur d'Alene Reservation and aboriginal territory should be managed. This Chapter contains a description of the alternatives, identifies the preferred alternative and provides a summary of the environmental consequences of each of the alternatives.

The alternatives evaluated in this Draft Programmatic Environmental Impact Statement (DPEIS) were developed by the Integrated Resource Management Plan (IRMP) Interdisciplinary Team (IDT). The alternatives integrate comments and suggestions obtained from public workshops, public meetings, questionnaires, state and federal agency representatives, and the IRMP Community Advisory Committee (CAC). To address the issues identified from the public involvement/scoping process, the IDT developed a set of goals and objectives for the Integrated Resource Management Plan (IRMP). The public clearly identified the need for natural resource protection, restoration and maintenance of the rural character of the Reservation.

This Chapter describes the alternatives in detail and contains the following sections:

- \* Elements Common to All Alternatives
- \* Alternatives Considered in Detail
- \* Alternatives Not Considered in Detail
- \* Identification of the Preferred Alternative
- \* Implementation, Monitoring and Amendment Process for All Alternatives
- \* Comparison of Alternatives

### **2.1 Integrated Resource Management Plan Alternatives**

This Chapter describes three IRMP alternatives and the “no action” alternative. As alternatives were developed and refined, some features were modified or new elements were included. Public

involvement and IRMP Future Focus Workshops refined the alternatives or created new ones. The first main element of the alternatives in this IRMP DPEIS consists of land use recommendations.

In respect to natural resources planning for land use, the Tribe recommends dividing the Reservation into Land Management Areas (LMA) based on watershed boundaries. These LMAs are the Lake Creek, Coeur d'Alene Lake, St. Maries/St. Joe, Plummer Creek, Benewah Creek and Hangman Creek watersheds (Figure 2.1.1). Although the Tribe recommends that land use planning occur on a watershed basis, land use recommendations in this Chapter are detailed only for the Reservation portions of each LMA watershed. Coordination and cooperation on land use management activities between the Tribe and other State/Local agencies is recommended for the entirety of LMA watersheds and the Tribe's aboriginal territory.

Other main elements of the alternatives consist of 100-year desired future conditions (DFCs) and 20-year goals and objectives for four main resource categories:

- \* Landscape: Includes 100-year DFCs for the Tribe's aboriginal territory, including the Reservation.
- \* Culture: Includes 100-year DFCs for the Tribe's aboriginal territory, including the Reservation.
- \* Natural Environment: Includes overall 100-year DFCs and 20-year goals for a number of natural resource-related categories on the Reservation.
- \* Human Environment: Includes overall 100-year DFCs and 20-year goals for a number of development and infrastructure-related resource categories that impact natural and Tribal cultural resources on the Reservation.

## **2.2 ELEMENTS COMMON TO ALL ALTERNATIVES**

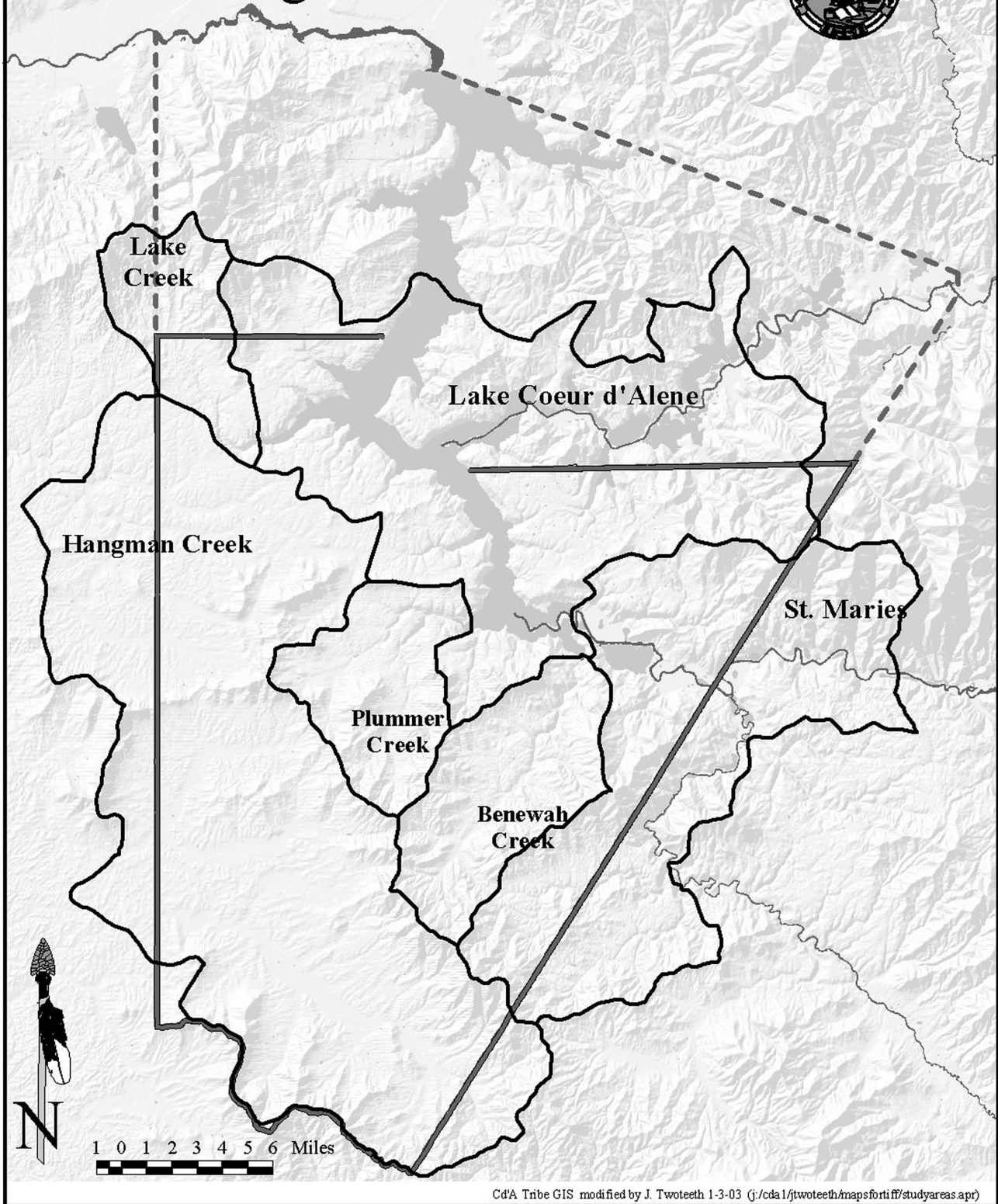
This section of the Chapter describes areas where all of the alternatives are the same. The section includes:

- \* Land use recommendations common to all alternatives.
- \* Land use 100-Year DFCs and 20-Year Goals common to all alternatives.
- \* 100-Year DFCs and 20-Year Goals for each resource category common to all alternatives.

### **Land Use Recommendations Common to All Alternatives**

The cultural land use of the Coeur d'Alene Tribe and input from all Reservation residents drive many common elements in each IRMP alternative. The elements common to all alternatives discovered and developed by the IDT are presented below as 100-Year DFCs, 20-Year Goals and Land Management Recommendations (LMRs). Note: The LMRs do not always directly correspond to watershed boundaries.

Figure 2.1.1  
Land Management Areas



Cd'A Tribe GIS modified by J. Twoteeth 1-3-03 (j:/cda1/jtwoteeth/maps/fortiff/studyareas.apr)



## **Land Use 100-Year Desired Future Conditions and 20-Year Goals Common to All**

1. Restore and maintain Tribal cultural land use for subsistence activities as desired.
2. Maintain the rural character of the Reservation in all LMRs except for areas designated for development.
3. Encourage maintenance of existing farmland and forestland.
4. Encourage maintenance and restoration of wetlands, riparian areas, streams and forestland.
5. Discourage subdivision of property in all LMRs except for areas designated for development.
6. Develop a Land Use Plan for the Reservation, including a Shoreline Management Plan.
7. Develop open space plans for Reservation watersheds.
8. Utilize principles of conservation zoning to require conservation of open space identified in the plans when property is developed (Arendt 1999).

### **LMR1: Development (Red Areas on Maps)**

This land use designation in the IRMP alternatives provides for the growth and development of commercial, industrial, residential, recreation, and administrative facilities. In this LMR, development takes priority over all other uses.

- \* Encourage infrastructure development and designate areas for similar commercial land use such as business, industry, high density residential, recreation (commercial and private), and government facilities.
- \* Encourage establishing zoning regulations in the Development LMR1 for controlled growth.
- \* Maintain zoning regulations coordination with local and county entities for compatibility and consistency.
- \* Identify areas as culturally or ecologically significant and create protective designations.
- \* Maintain and encourage continued production on agricultural and forestlands.
- \* Encourage and designate areas for infrastructure expansion (water, sewer, utilities, and roads) to meet growth.
- \* Protect areas of designated critical habitat and wetlands.
- \* Encourage application of Tribal Forest Management Plan Standards and Guidelines, especially those related to riparian zone management (Appendix E).

### **LMR2: Conservation (Blue Areas on Maps)**

This land use designation in the IRMP alternatives provides for the maintenance and protection of ecological and Tribal cultural values, which are an integral part of Tribal existence. In this LMR, conservation takes priority over all other uses.

- \* Discourage new pockets of commercial, industrial, residential, recreation, and government growth.
- \* Encourage and designate areas of existing ecological and Tribal cultural significance for protection. Increase restoration activities to move towards pre-settlement conditions.
- \* Areas with existing recreational development and activities could be expanded and new recreation sites could be added if a site specific analysis concluded it would enhance, be compatible, or complementary to ecological and Tribal cultural preservation.
- \* Allow for existing agricultural and forestlands to remain in production.
- \* Discourage expansion of infrastructure (water, sewer, utilities, and roads). Any new infrastructure needs would be compatible with the environment and on a case-by-case basis.
- \* Encourage reduction of road density for a target road density of 1 mile/square mile.
- \* Protect and restore areas for fisheries and wildlife habitat, Tribal cultural uses, and wetlands as opportunities arise.
- \* Encourage application of Tribal Forest Management Plan Standards and Guidelines, especially those related to riparian zone management (Appendix E).

### **LMR3: Rural (Orange Areas on Maps)**

This land use designation in the IRMP alternatives provides for the maintenance and protection of the Reservation's rural character. This provides for retention of the "working" landscape, while maintaining open space and natural areas. In this LMR, retention of the Reservation's rural character would take priority over all other uses.

- \* Encourage maintenance of the rural character of the Reservation.
- \* Areas that are suggested for residential, commercial and recreational development would need to be assessed as to whether they are compatible or complementary to the rural character. Assessments may involve the type of proposed building and materials, size, proximity to other significant areas, and need. Restrictions or exclusion of specific types of recreation and specific criteria for buildings and shoreline development may be recommended.
- \* Design and implement development in designated areas, including infrastructure (water, sewer, utilities, and roads), that protects existing ecological connectivity and Tribal cultural uses. Any new infrastructure needs would be compatible with the environment and on a case-by-case basis.
- \* Encourage reduction of road density for a target road density of 3 miles/square mile.
- \* Maintain existing productive agricultural and forestlands consistent with the rural character.
- \* Encourage restoration of riparian areas in actively managed lands. Develop cooperative agreements and restore designated priority watersheds where agricultural lands have impacted riparian areas.



- \* Encourage application of Tribal Forest Management Plan Standards and Guidelines, especially those related to riparian zone management (Appendix E).

#### **LMR4: Recreation (Bright Yellow Areas on Maps)**

This land use designation in the IRMP alternatives provides for recreational opportunities. The rural character of the Reservation would be maintained and allow for well planned recreational development. Recreation opportunities would take priority over all other uses in this LMR.

- \* Encourage protection of recreational land use by maintaining adequate open space and natural areas.
- \* Discourage commercial and residential growth.
- \* Identify appropriate areas for recreational related growth.
- \* Encourage and designate areas for protection of existing ecological and Tribal cultural attributes.
- \* Recommend the development of shoreline setbacks and buffers around ecological and Tribal culturally significant areas.
- \* Maintain existing agricultural and forestlands in production.
- \* Encourage and designate appropriate areas for expansion of infrastructure (water, sewer, utilities, and roads) to meet the needs of recreational use.
- \* Encourage reduction of road density for a target road density of 3 miles/square mile.
- \* Encourage application of Tribal Forest Management Plan Standards and Guidelines, especially those related to riparian zone management (Appendix E).

#### **LMR5: Agriculture (Light Yellow Areas on Maps)**

This land use designation in the IRMP alternatives provides for the maintenance and protection of the rural and agricultural character of the Reservation. Agriculture would take priority over all other uses in this LMR.

- \* Encourage and designate areas for agricultural production.
- \* Allow for the designation of areas for recreational activities that are complimentary to agricultural land use.
- \* Where appropriate, recommend restoring agricultural lands back into forest or native grasslands.
- \* Discourage new infrastructure (water, sewer, utilities, and roads) development. Any new infrastructure needs would be compatible with the environment and on a case-by-case basis.
- \* Encourage reduction of road density for a target road density of 2 miles/square mile.
- \* Encourage application of Tribal Forest Management Plan Standards and Guidelines, especially those related to riparian zone management (Appendix E).

### **LMR6: Forest (Green Areas on Maps)**

This land use designation in the IRMP alternatives provides for the maintenance and protection of the Reservation's forested areas. Forests and forestry activities would take priority over all other uses in this LMR.

- \* Encourage and designate areas for timber production. Recommend timber harvests that maintain an ecological balance and foster healthy habitats, consistent with the Tribal Forest Plan.
- \* Discourage new housing development.
- \* Designate areas for recreation where compatible with timber development and production.
- \* Discourage conversion of forestland into agricultural or other land uses.
- \* Discourage infrastructure (water, sewer, utilities, and roads) development. Any new infrastructure needs would be compatible with the environment and on a case-by-case basis.
- \* Encourage reduction of road density for a target road density of 2 miles/square mile.
- \* Encourage application of Tribal Forest Management Plan Standards and Guidelines, especially those related to riparian zone management (Appendix E).

### **2.2.1 100-year Desired Future Conditions Common To All Alternatives**

#### **Landscape (Aboriginal Territory and Reservation)**

The 100-year DFCs for the Coeur d'Alene Tribe's aboriginal territory and Reservation are to restore and maintain native biological diversity throughout the landscape.

- \* Increase Tribal involvement on all land use changes and development projects in the aboriginal territory and on the Reservation.
- \* Increase Tribal staffing to consult on proposed developments throughout the aboriginal territory and on the Reservation.
- \* Work with other entities to establish biodiversity corridors through already-developed areas that are linked with adjacent natural areas.

#### **Cultural (Aboriginal Territory and Reservation)**

The 100-year DFCs for the cultural resource category are for the Tribe to protect existing cultural resources and continue to conduct hunting, gathering, fishing, and cultural activities throughout the aboriginal territory and Reservation.

- \* Preserve, protect, manage, and enhance Tribal culture.
- \* Aggressively work with private, local, and federal entities to protect and manage cultural resources and sites. Increase awareness regarding the significance of these resources.

- \* Provide for education of traditional practices and Tribal history to non-native people.
- \* Protect sacred and culturally significant sites and properties through the Tribal cultural program.
- \* Build a Tribal Interpretive Center.

### ***2.2.2 20-Year Goals Common to All***

#### **Natural Environment (Reservation)**

##### ***Air***

- \* At minimum, maintain air quality at the U.S. EPA status of a Class II Airshed (good air quality but not pristine).
- \* Continue to monitor and collect air quality and meteorological (weather) data.
- \* Reassess guidelines for air pollutants on a continuing basis.
- \* Continue to develop working relationships with federal, state and local entities to network and form resource directories for pollution sources.
- \* Increase education, outreach and mitigation for indoor air quality problems.
- \* Develop a Tribal program to address point sources of air pollution.

##### ***Biodiversity***

- \* Coordinate with the local, state, federal, and private entities for the restoration and maintenance of species and habitats.
- \* Encourage community involvement in caring for the natural biodiversity on the Reservation.

##### ***Coeur d'Alene Lake***

- \* Continue to regulate all proposed encroachments within Tribal waters to provide safe recreational access, maintain shoreline beauty and protect biodiversity.
- \* Minimize pollution caused by watercraft.
- \* Promote active management and protection for native fishes in Coeur d'Alene Lake.
- \* Implement programs to reduce non-point source and nutrient pollution in Coeur d'Alene Lake to improve and maintain water quality.

##### ***Fire***

- \* Use fire for ecological restoration activities.
- \* Work cooperatively to protect all structures on the Reservation from fire damage.
- \* Develop fuel breaks in wildland urban interface and wildland areas to protect resource values and lives.

- \* Develop a multi-year fire plan for prescribed burns and let burn activities for ecosystem maintenance, thereby reducing risks to wildland urban interface areas. Draft the plan in coordination with other Tribal resource managers and with other entities' fire plans.
- \* As areas are restored to pre-settlement fire regimes, fire will be used to maintain these conditions.

### ***Fish***

- \* Implement Tribal Fisheries Management Plans to achieve 20-Year goals and 100-Year DFCs.
- \* Restore, protect, expand and reestablish fish populations in select areas to sustainable levels to provide harvest opportunities.
- \* Encourage community involvement in caring for native fish populations and habitats.
- \* Develop cooperative agreements, design habitat restoration projects and pursue funding to accomplish fisheries goals.

### ***Forest***

- \* Continue to implement the Tribal Forest Management Plan on Tribal and allotted lands.

### ***Minerals***

- \* Any mining conducted on the Reservation should be done in a manner which does not negatively affect surrounding lands, waters, biotic or cultural resources.

### ***Riparian***

- \* Protect, restore and enhance riparian areas.
- \* Encourage use of Tribal recommendations for minimum buffers on all Reservation streams (Appendix E).
- \* Encourage community involvement in caring for riparian resources.

### ***Soil***

- \* Improve soil fertility through the use and monitoring of Best Management Practices (BMPs).
- \* Improve soil permeability through the use and monitoring of BMPs.

### ***Water***

- \* Coordinate with other entities and the public to restore Reservation water bodies to Tribal water quality standards.
- \* Coordinate with other entities and the public to bring the 303(d)-listed water bodies into compliance with water quality standards through the implementation of Total Maximum Daily Loads (TMDLs) and Tribal water quality standards.
- \* Encourage implementation of water quality-based BMPs on all Reservation streams.

### ***Wetlands***

- \* Coordinate with other entities and the public to restore and maintain wetlands.

### ***Wildlife***

- \* Coordinate with other entities and the public to restore and maintain wildlife habitats and species across the Reservation, including Threatened and Endangered Species (TES).
- \* Provide short and long term harvest opportunities that support both subsistence activities and limited sport harvest.
- \* Continue to pursue and acquire funding to protect and/or restore key pieces of wildlife habitat such as wetlands, riparian areas and big game winter range.
- \* Encourage community involvement in caring for wildlife populations and habitats on the Reservation.

### ***Human Environment (Reservation)***

#### ***Agriculture***

- \* Reduce soil erosion through implementation of agricultural Best Management Practices (BMPs).
- \* Encourage planting of perennial crops and utilizing no-till farming practices to reduce soil erosion.
- \* Continue to research alternatives to agricultural field burning.
- \* If feasible alternatives to agricultural field burning are developed, then implement them to reduce emissions.

#### ***Development***

- \* Coordinate land use and development patterns (planning and implementation) between the Tribe, other entities and the public.

#### ***Energy***

- \* Research, develop, and promote the use of alternative energy and fuel sources such as wind, solar, hydrogen, and others.

#### ***Environmental Health***

- \* Assist in the proper design, construction and operation of schools, day cares, private water and septic systems, food service facilities and community buildings for optimal public health and safety.
- \* Strengthen the collaboration between Tribal Environmental Health, Benewah Medical Center and the State of Idaho's Panhandle Health District.
- \* Work to eliminate the installation and operation of sub-standard water and sewer systems.



- \* Eliminate vector-borne illnesses on the Reservation through the use of integrated programs for pest control, habitat management, and public education.
- \* Develop programs to deal with chemical and physical hazards, including hazardous chemical spills, household hazardous chemicals, and preventable injuries.
- \* Assist in the process to design, construct, and operate public water recreation facilities (including swimming pools, spas, waterslides, spray pools, and bathing beaches) to meet or exceed all applicable standards for sanitation and safety. Reduce or eliminate water-borne illnesses associated with these types of facilities.
- \* Clearly define and expand the role of the Tribal Environmental Health Program.
- \* Collect data on potential contaminants and, if found, eliminate or mitigate.
- \* Continue State/Tribal cooperation with Idaho State inspections.
- \* Develop Tribal primacy where desirable and feasible.

### ***Housing***

- \* Implement the Tribal Housing Authority Indian Housing Plan.
- \* Coordinate with other entities and the public to incorporate conservation subdivision designs into housing developments.
- \* Work with other entities and the public to create consistency between Tribal and non-Tribal housing plans, especially for the location and density of new housing.

### ***Infrastructure***

- \* Prepare a power and telecommunications master plan and incorporate it into the Tribal Comprehensive Plan, and Tribal Code.
- \* Work with Tribal and non-Tribal governments and the public to develop a coordinated transportation management plan for the Reservation.
- \* Continue to update and implement the Tribe's transportation plan.
- \* Coordinate a water/sewer management plan with counties and cities within the Reservation.

### ***Pesticides***

- \* Build/enhance relationships with the regulated community regarding Tribal pesticide enforcement activities on the Reservation.
- \* Enhance relationships with the Idaho State pesticide program to improve communication and cooperative investigations.

### ***Recreation***

- \* Manage the Reservation segment of the "Trail of the Coeur d'Alenes."
- \* Work closely with the State of Idaho to assure a seamless connection between State and Tribal portions of the Trail of the Coeur d'Alenes.
- \* Develop a Tribal Recreation Plan.

- \* Identify and develop additional recreational sites and parks as desired and appropriate.
- \* Develop a boat launch and campsite.
- \* Aid in the development of Camp Larson (recreation facility) planning and operations.

#### ***Solid/Hazardous Waste***

- \* Properly store, transport, handle, and dispose of hazardous materials.
- \* Coordinate with other entities and the public to develop a solid waste management plan for the Reservation.
- \* Promote source reduction, composting, reuse and recycling of solid wastes.

## **2.3 Alternatives Considered in Detail**

In addition to the Land Management Recommendations, 100-Year Desired Future Conditions and 20-Year Goals common to all alternatives discussed above, three IRMP alternatives and a “no action” alternative were developed. Each alternative management strategy is designed to meet the DFCs of the Reservation and the Tribe’s aboriginal territory to varying degrees (Section 2.7 Alternative Comparison).

### ***2.3.1 Alternative A: No Action, No Change From Current Management***

This alternative includes actions and developments likely to occur in the absence of adopting and implementing an IRMP. Many of the actions anticipated under this alternative are either required to meet existing Tribal or federal law, policy, regulations, or are authorized by existing management plans. Under this alternative, current land use, recreation and resource management activities would continue using existing laws and policies, land use practices, management plans and agreements. Specific resource related management actions or activities identified by the Tribe would continue on lands within the Reservation. Large additional efforts to influence the natural and Tribal cultural resource management of the Tribe’s aboriginal territory would not be anticipated to occur. This alternative’s desired future condition continues natural and Tribal cultural resource management without broad, Reservation-wide planning and direction. As such, there is no map of land use recommendations for this alternative. Specific elements of the No Action Alternative are outlined in Section 2.2 Elements Common to All Alternatives.

### ***2.3.2 Alternative B: Stqhesiple’ Integrated Resource Alternative***

This alternative recommends and provides guidance for enhancement of natural and Tribal cultural resources, and recommends land use on the Reservation that meets social, community, and economic needs. The 100-year Desired Future Conditions for the Landscape and Tribal Culture resource categories are included in this alternative for the Tribe’s aboriginal territory as described in Section 2.2 Elements Common to All Alternatives. Implementation of Alternative B would fa-

facilitate coordination among Tribal Council, agencies, public, and other jurisdictional entities to meet identified goals and objectives on the Reservation and across the landscape.

The overall Desired Future Conditions for Alternative B are:

- \* To maintain the rural character of the Reservation,
- \* Restore and maintain as much of the Reservation ecology and biodiversity as possible in order to provide for Tribal subsistence and cultural uses of the resources,
- \* Assist with effective land use planning and resource management through cooperative efforts, and
- \* Work to achieve the DFCs included in Section 2.2 in the Tribe's aboriginal territory.

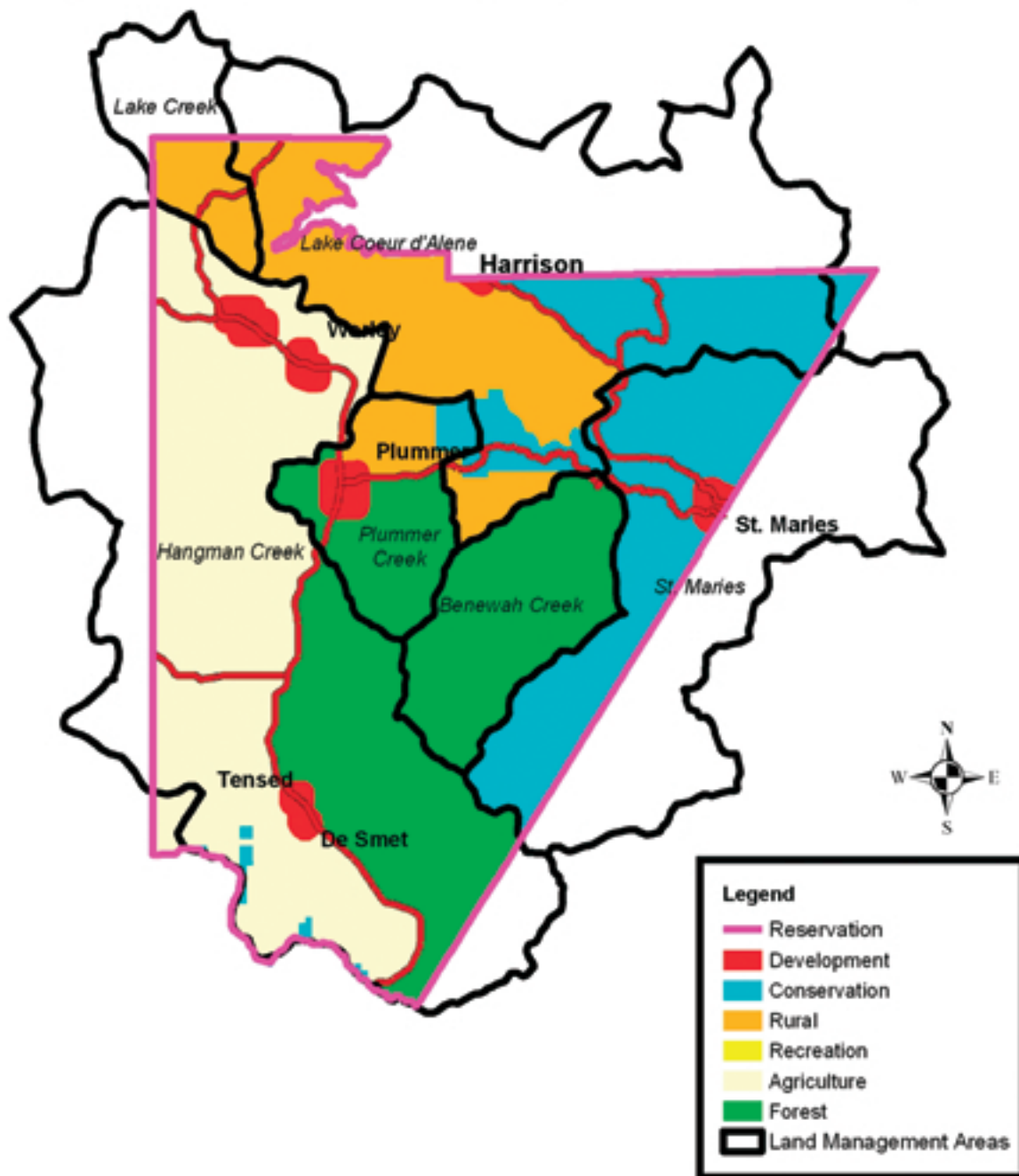
### Land Use Recommendations

Using the LMRs described in Section 2.1, the Reservation has been divided into specific management areas in order to meet the 100-year DFCs for the landscape and Tribal culture resource categories and the 20-year goals for the natural and human resource categories common to all, as well as the specific goals in Alternative B. Although the land use recommendations outlined here pertain only to Reservation lands, these land uses are also recommended for application to each of the LMA watersheds beyond the Reservation boundaries (see Figure 2.1.1). Table 2.3.1, Land Management Recommendations Alternative B, displays the acreage associated with each management recommendation for the LMA watersheds. Figure 2.3.1 displays the land management recommendations for Alternative B.

**Table 2.3.1 Land Management Recommendations by Watershed Alternative B (in Acres)**

<i>Watersheds</i>	<i>LMR1 Development</i>	<i>LMR2 Conservation</i>	<i>LMR3 Rural</i>	<i>LMR4 Recreation</i>	<i>LMR5 Agriculture</i>	<i>LMR6 Forest</i>
Hangman Creek	6,204	1,152	0	0	92,565	44,324
Lake Creek	0	0	8,397	0	0	0
Plummer Creek	2,796	1,967	6,219	0	0	16,955
Benewah Creek	0	0	0	0	0	34,279
St. Maries/St. Joe	1,746	45,314	0	0	0	0
Lake Coeur d'Alene	390	27,716	46,507	0	0	0
Total	11,136	76,149	61,123	0	92,565	95,558

**Figure 2.3.1 Coeur d'Alene Tribe - IRMP  
Alternative B**



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by j.twoteeth 2/3/03

## **Natural Environment—100-Year Desired Future Conditions and 20-Year Goals**

The overall Natural Environment DFC for Alternative B is maintenance of the healthy portions of the ecosystem and, where feasible, restoration of lost ecological components. Conserve farmland unless it is restored to pre-settlement vegetation. Individual Tribal programs and departments responsible for specific resources would implement the programs and objectives outlined below in cooperation with other entities and the public.

### ***Air***

- \* Work to improve air quality to protect human health and ecology.

### ***Biodiversity***

- \* Develop and implement management plans to control non-native species of fish and wildlife by the year 2010.
- \* Develop and implement management plans to control noxious weeds by the year 2006.
- \* Continue to offer outreach programs for area residents and youth to share information about biodiversity.
- \* Involve Tribal elders in passing on knowledge of natural resources.
- \* Initiate an educational curriculum for area schools to raise student awareness of ecological processes, environmental potentials and plant and animal diversity.

### ***Coeur d'Alene Lake***

- \* Coordinate the development of a shoreline management plan.
- \* Implement and enforce the Tribe's encroachment program.
- \* Monitor Lake conditions on an ongoing basis.
- \* Create more opportunities for Tribal members to conduct subsistence activities in Coeur d'Alene Lake.
- \* Manage commercial and recreational activities on Coeur d'Alene Lake.

### ***Fish***

- \* Protect, restore, and enhance existing terrestrial and aquatic fisheries habitat resources to meet increased demands (i.e. Tribal cultural, subsistence, and recreational) on these resources.
- \* Restore bull trout populations to a level where adult escapement is well distributed, and at least six of the St. Joe River spawning tributaries support healthy spawning populations at any one time, and spawning is occurring in the Coeur d'Alene River portion of the basin. Harvest 1,000 fish annually from the Coeur d'Alene subbasin by the year 2020.
- \* Protect and restore remaining stocks of genetically pure westslope cutthroat trout to ensure their continued existence in the basin. Maintain catch rates of over 1.0 fish per



hour in the St. Joe, Coeur d'Alene and St. Maries Rivers. Produce an annual catch of over 1,000 fish in Coeur d'Alene Lake and an annual catch of 11,000 fish from Lake, Benewah, Evans and Alder Creeks. Achieve good fish population distribution throughout the tributaries to the basin.

- \* Protect and enhance any remaining stocks of Redband trout or other salmonids present in the Hangman watershed. Specifically, achieve good spawning populations in Mission Creek, Sheep Creek, Nehchen Creek and Indian Creek. Achieve good rearing habitat in the mainstem of Hangman Creek to allow migration of trout from the Spokane River.
- \* Provide both short and long-term harvest opportunities that support Tribal subsistence activities and a sport-angler harvest. Maintain fisheries for introduced species to include an annual harvest of greater than 500,000 kokanee, greater than 5,000 chinook salmon, greater than 10,000 rainbow trout in Tribal catch-out ponds, and an average catch rate of greater than 0.5 fish per hour for largemouth bass.

### ***Forest***

- \* Maintain areas designated for a single or multi-story well stocked forest, providing goods and resources to the community without seriously conflicting with other natural resource elements. Enhance multiple use goals and practices on allotments and Tribal trust lands.
- \* Encourage forest restoration in identified areas where forested lands have been converted to agricultural areas.
- \* Coordinate Tribal forest management practices with private forest land owners on the Reservation to provide consistent management.

### ***Minerals***

- \* Formulate an interdisciplinary team and implement a program to review all proposed mining activities and assess potential impacts based on submitted work plans by the year 2006.
- \* Develop a GIS database to track locations of all mining activities, including rock quarries and material sites.
- \* Review the federal mining code, research developing a Tribal Mining Code and, if warranted, write a Tribal Mining Code.
- \* Develop up to three additional Tribal aggregate mining sites (less than 5 acres each) when not in conflict with ecologically and culturally sensitive areas.

### ***Riparian***

- \* Inventory current riparian conditions in key watersheds to identify areas that are in need of restoration and to identify areas that currently function properly and need protection by the year 2006 (key watersheds are Evans, Alder, Benewah, Lake and Hangman).

- \* Prepare and implement general and specific restoration plans in key watersheds.
- \* Develop a cost efficient means of replanting native vegetation and to stabilize streams in key watersheds.
- \* Acquire riparian habitat for maintenance and/or restoration in key watersheds.
- \* Work with landowners and agencies to provide cost share and incentives for riparian protection and restoration.

### ***Soil***

- \* Reestablish trees or permanent cover on acreage with marginal soil classes.
- \* Encourage more minimum till and/or no-till farming techniques.

### ***Water***

- \* Expand the Tribal Water Resource Program to bring Reservation streams and lakes into compliance with the Tribe's Water Quality Standards by the year 2024. Protect these streams and lakes from anthropogenic (human-caused) pollution.

### ***Wetlands***

- \* Restore proper functioning conditions to a minimum of 30 percent (estimated at 6,425 acres) of the native riparian/wetland habitats to support vertebrate species that use these habitats by the year 2024.

### ***Wildlife***

- \* Reintroduce as many of the native extirpated (locally extinct) wildlife species within the Reservation as possible.
- \* Control populations of non-native wildlife species within the Reservation, especially those that adversely affect native populations.
- \* Establish and implement annual population monitoring of culturally important species.
- \* Establish designated travel corridors that provide refuge for wildlife species.
- \* Quantify the effects of predators on game species, particularly big game.
- \* Establish a process of monitoring calving success on all big game species.
- \* Designate summer and winter range for big game on the Reservation and manage fires and forest harvest to maximize forage availability on summer ranges.
- \* Adjust road closures as necessary to ensure protection of wildlife populations during critical periods.
- \* Protect and restore a minimum of 1000 acres of Palouse Steppe.
- \* Designate 1000 acres of moist coniferous forest for development of old growth conditions.
- \* Designate 2500 acres of low elevation dry forest habitat for development of old growth open woodland conditions.

## **Human Environment—100-Year Desired Future Conditions and 20-Year Goals**

The overall DFCs for the human environment for Alternative B are:

- \* To ensure the health and safety of Coeur d’Alene Tribal members and Reservation residents by means of an environmental health program that manages environmental factors responsible for contamination, disease transmission and personal injuries.
- \* To allow for moderate development in designated areas that is visually pleasing, energy-efficient, and with infrastructure of the highest standards.
- \* Ensure that the power and telecommunications infrastructure supports the Tribal Government, public safety personnel (fire/medical/police), medical facilities, educational institutes, planned new development, and Reservation communities. The infrastructure must be reliable. It should include multiple access mechanisms to accommodate remote customers.
- \* To assist in providing a high quality of life for all Reservation residents.

### ***Agriculture***

- \* Retain existing farmland for future generations, restore marginal farmlands to forest lands. Continue to grow wheat, barley, lentils, peas and grass seed.
- \* Reduce agricultural-related erosion by 25 percent by the year 2024.
- \* Reduce the application of chemicals by 50 percent on agricultural lands by the year 2024.
- \* Evaluate Tribal agricultural lands for productivity and determine the suitability of other resource values by the year 2006.
- \* Work with other entities and the public to evaluate private, non-Trust agricultural lands for productivity and to develop management recommendations.

### ***Development***

- \* Encourage well thought out development projects in designated areas through sound planning.
- \* Develop visually pleasing buildings that are complimentary to the natural and cultural setting in environmentally suited areas.
- \* Provide for a Tribal culturally specific built environment.

### ***Energy***

- \* Research, develop, and promote the use of alternative energy and fuel sources such as wind, solar, hydrogen, and others.
- \* Promote the research and use of alternative technology to conserve energy and other resources.
- \* Regulate the use and transport of nuclear materials on or through the Reservation consistent with federal law.

### ***Housing***

- \* Work with other entities and the public to establish habitat corridors and provide open space.
- \* Protect fish and wildlife habitat during construction using BMPs.

### ***Infrastructure***

- \* Ensure that the transportation, power and telecommunications infrastructure supports the Tribal Government, public safety personnel (fire/medical/police), medical facilities, educational institutes, planned new development, Reservation communities, access to farm and market roads and amenities suitable for a rural population.
- \* Provide universal broadband services that are capable of integrating voice, data, and video, as well as other emerging technologies.

### ***Pesticides***

- \* Continue to maintain, enforce and update the Coeur d'Alene Tribal Code and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) on Circuit Rider Cooperating Reservations.
- \* Continue compliance use inspections and follow-up inspections.
- \* Continue to communicate with nationwide Tribal pesticide enforcement programs through existing networks such as Tribal Pesticide Program Council (TPPC) and the Institute for Tribal Environmental Professionals (ITEP).

### ***Recreation***

- \* Implement a State/Tribal trail management plan for the Trail of the Coeur d'Alenes.
- \* Develop and update recreation codes that meet the needs of future Tribal activities.

### **Additional Elements Previously Discussed**

Please refer to Section 2.2 for a discussion of the additional elements of Alternative B which are common to all of the alternatives. These elements include the following:

- \* Landscape 100-Year Desired Future Conditions
- \* Cultural 100-Year Desired Future Conditions
- \* Fire 20-Year Goals
- \* Environmental Health 20-Year Goals
- \* Solid/Hazardous Waste 20-Year Goals

### ***2.3.3 Alternative C: Natural Resource Conservation***

This alternative recommends an emphasis on natural resource conservation while maintaining a working landscape for agriculture and forestry where compatible. For example, it is recommended that new development be discouraged and limited to designated and environmentally suitable areas,

thereby minimizing resource disturbances and adverse environmental impacts. The Desired Future Conditions for Alternative C are restoration and maintenance of the Reservation's ecological integrity, to support to the greatest extent possible, continued Tribal cultural and subsistence use of resources by Tribal members. In addition, work to achieve the DFCs included in Section 2.2 in the Tribe's aboriginal territory.

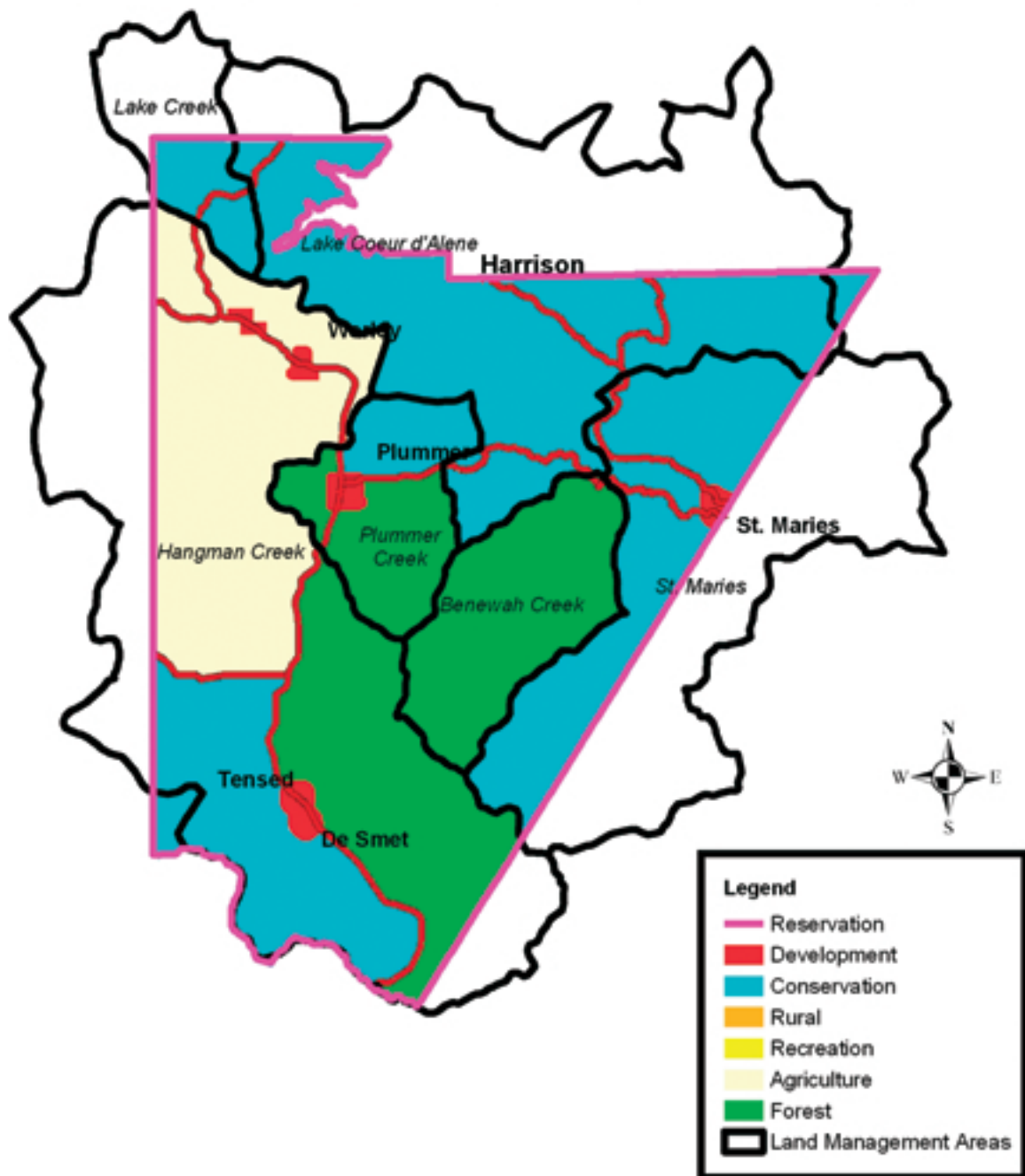
### Land Use Recommendations

Using the LMRs described in Section 2.1, the Reservation has been divided into specific management areas in order to meet the 100-year DFCs for the landscape and culture resource categories and the 20-year goals for the natural and human resource categories common to all, as well as the specific goals and objectives of Alternative C. Although the land use recommendations outlined here pertain only to Reservation lands, these land uses are also recommended for application to each of the LMA watersheds beyond the Reservation boundaries (see Figure 2.1.1). Table 2.3.2, Land Management Recommendations Alternative C displays the acreage associated with each management recommendation for the LMA watersheds. Figure 2.3.2 displays the land management recommendations for Alternative C.

**Table 2.3.2 Land Management Recommendations by Watershed Alternative C (in Acres)**

<i>Watersheds</i>	<i>LMR1 Development</i>	<i>LMR2 Conservation</i>	<i>LMR3 Rural</i>	<i>LMR4 Recreation</i>	<i>LMR5 Agriculture</i>	<i>LMR6 Forest</i>
Hangman Creek	3,099	35,021	0	0	62,104	44,324
Lake Creek	0	8,397	0	0	0	0
Plummer Creek	1,168	8,511	0	0	0	17,966
Benewah Creek	0	0	0	0	0	34,279
St. Maries/St. Joe	1,110	45,950	0	0	0	0
Lake Coeur d'Alene	24	74,623	0	0	0	0
Total	5,401	172,502	0	0	62,104	96,569

**Figure 2.3.2 Coeur d'Alene Tribe - IRMP  
Alternative C**



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## **Natural Environment—100-Year Desired Future Conditions and 20-Year Goals**

The overall Natural Environment DFCs for Alternative C are to maintain and restore the functions and attributes of most of the ecosystem across the Reservation. To restore the Reservation and aboriginal territory to as close to pre-settlement condition as possible, this alternative promotes the restoration of lands suitable for habitat and biodiversity enhancement. The Tribe will work in coordination with other entities and the public to implement the goals outlined below.

### ***Air***

- \* Achieve reductions in air pollutants to work toward reclassifying the Reservation as a U.S. Environmental Protection Agency Class I Airshed (pristine air quality and the same standard as found in most National Parks).

### ***Biodiversity***

- \* Develop and implement management plans to control non-native species of fish and wildlife by the year 2010.
- \* Develop and implement management plans to control noxious weeds by the year 2006.
- \* Continue to offer outreach programs for area residents and youth to educate them about biodiversity.
- \* Involve Tribal elders in passing on knowledge of natural resources.
- \* Initiate an educational curriculum for area schools designed to raise student awareness of ecological processes, environmental potentials and plant and animal diversity.

### ***Coeur d'Alene Lake***

- \* Coordinate the development of a shoreline management plan.
- \* Implement and enforce the Tribe's encroachment program.
- \* Monitor Lake conditions on an ongoing basis.
- \* Provide more opportunities for Tribal members to conduct subsistence activities in Coeur d'Alene Lake.

### ***Fish***

- \* Protect, restore, and enhance existing terrestrial and aquatic habitat resources to meet increased demands (i.e. cultural, subsistence, and recreational) on these resources. Expand current fisheries restoration efforts on the Reservation to include Fighting Creek, Plummer Creek and Hells Gulch watersheds.
- \* Restore bull trout populations to a level where adult escapement is well distributed, and at least six of the St. Joe River spawning tributaries support healthy spawning populations at any one time, and spawning is occurring in the Coeur d'Alene River portion of the basin. Harvest 2,000 fish annually from the Coeur d'Alene subbasin.
- \* Protect and restore remaining stocks of genetically pure westslope cutthroat trout to ensure their continued existence in the basin. Maintain catch rates of over 1.0 fish per hour in the



Overlooking Windy Bay, Coeur d'Alene Lake

St. Joe, Coeur d'Alene and St. Maries Rivers. Produce an annual catch of over 5,000 fish in Coeur d'Alene Lake and an annual catch of 15,000 fish from Lake, Benewah, Evans and Alder Creeks. Achieve good fish population distribution throughout the tributaries to the basin.

- \* Protect and enhance any remaining stocks of Redband trout or other salmonids present in the Hangman watershed. Specifically, achieve good spawning populations in Mission Creek, Sheep Creek, Nehchen Creek and Indian Creek. Achieve good rearing habitat in the mainstem of Hangman Creek to allow migration of trout from the Spokane River.
- \* Provide both short and long-term harvest opportunities that support Tribal subsistence activities and a sport-angler harvest. Maintain fisheries for introduced species to include an annual harvest of greater than 500,000 kokanee, greater than 5,000 chinook salmon, greater than 10,000 rainbow trout in Tribal catch-out ponds, and an average catch rate of greater than 0.5 fish per hour for largemouth bass.

### ***Forest***

- \* Maintain areas designated for a single or multi-story well stocked forest, providing goods

and resources to the community without seriously conflicting with other natural resource elements. Enhance multiple use goals and practices on allotments and Tribal trust lands.

- \* Encourage forest restoration in identified areas where forested lands have been converted to agricultural areas.
- \* Coordinate Tribal forest management practices with private forest land owners on the Reservation to provide consistent management.

### ***Minerals***

- \* Formulate an interdisciplinary team and implement a program to review all proposed mining activities and assess potential impacts based on submitted work plans by the year 2006.
- \* Develop a GIS database to track locations of all mining activities, including rock quarries and material sites.
- \* Review the federal mining code, research developing a Tribal Mining Code and, if warranted, write a Tribal Mining Code.
- \* Minimize new aggregate site development.

### ***Riparian***

- \* Inventory current riparian conditions in key watersheds to identify areas that are in need of restoration and to identify areas that currently function properly and need protection by the year 2006.
- \* Prepare and implement general and specific restoration plans in key watersheds.
- \* Develop a cost efficient means of replanting native vegetation and to stabilize streams in key watersheds.
- \* Acquire riparian habitat for maintenance and/or restoration in key watersheds.
- \* Work with landowners and agencies to provide cost share and incentives for riparian protection and restoration.

### ***Soil***

- \* Reestablish trees or permanent cover on acreage with marginal soil classes.
- \* Promote more minimum till and/or no-till farming techniques.

### ***Water***

- \* Expand the Tribal Water Resource Program to bring Reservation streams and lakes into compliance with the Tribe's Water Quality Standards. Protect these streams and lakes from anthropogenic (human-caused) pollution.

### ***Wetlands***

- \* Restore proper functioning conditions to a minimum of 50 percent of the native riparian/wetland habitats to support vertebrate species that use these habitats.

## ***Wildlife***

- \* Reintroduce as many of the native extirpated (locally extinct) wildlife species within the Reservation as possible.
- \* Control populations of non-native wildlife species within the Reservation, especially those that adversely affect native populations.
- \* Establish and implement annual population monitoring of culturally important species.
- \* Establish designated travel corridors that provide refuge for wildlife species.
- \* Quantify the effects of predators on game species, particularly big game.
- \* Establish a process of monitoring calving success on all big game species.
- \* Designate summer and winter range for big game on the Reservation and manage fires and forest harvest to maximize forage availability on summer ranges.
- \* Adjust road closures as necessary to ensure protection of wildlife populations during critical periods.
- \* Protect and restore a minimum of 1500 acres of Palouse Steppe.
- \* Designate 2000 acres of moist coniferous forest for development of old growth conditions.
- \* Designate 5000 acres of low elevation dry forest habitat for development of old growth open woodland conditions.

## **Human Environment—100-Year Desired Future Conditions and 20-Year Goals**

The overall DFCs for the human environment for Alternative C are to ensure the health and safety of Coeur d'Alene Tribal members and Reservation residents. The Tribe, in coordination with other entities and the public will continue to manage environmental factors responsible for contamination, disease transmission and personal injuries. Development is generally limited to areas designated for that purpose (see Land Use Map for Alternative C, Figure 2.3.3). Very little new infrastructure is built, existing infrastructure is improved and road densities are greatly reduced in the forested areas of the Reservation.

## ***Agriculture***

- \* Retain existing farmland for future generations and restore marginal farmlands to forestlands. Continue to grow wheat, barley, lentils, peas, and grass seed on suitable lands only.
- \* Reduce agricultural related erosion by 40 percent.
- \* Reduce the application of chemicals by 75 percent on agricultural lands.
- \* Evaluate Tribal agricultural lands to determine suitability for other resource values.
- \* Work with other entities and the public to evaluate private, non-Trust agricultural lands for productivity and to develop management recommendations.

## ***Development***

- \* Allow for controlled, well thought out construction in designated areas through sound planning.

- \* Develop visually pleasing buildings that are complimentary to the natural and cultural setting in environmentally suited areas in LMR1: Development.

### ***Energy***

- \* Research, develop, and promote the use of alternative energy and fuel sources such as wind, solar, hydrogen, and others.
- \* Promote the research and use of alternative technology to conserve energy and other resources.
- \* Exclude energy sources that require the use of hazardous materials or require the transportation of hazardous materials. Specifically, exclude the use and transport of nuclear materials on or through the Reservation.

### ***Housing***

- \* Work with other entities and the public to establish habitat corridors and provide open space.
- \* Protect fish and wildlife habitat during construction using BMPs.

### ***Infrastructure***

- \* Discourage developing new infrastructure except in LMR1: Development areas.
- \* Ensure that the transportation, power and telecommunications infrastructure supports the Tribal Government, public safety personnel (fire/medical/police), medical facilities, educational institutes, planned new development, Reservation communities, access for farm and market roads and amenities suitable for a rural population.
- \* Provide universal broadband services that are capable of integrating voice, data, and video, as well as other emerging technologies.

### ***Pesticides***

- \* Continue to maintain, enforce and update the Coeur d'Alene Tribal Code and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) on Circuit Rider Cooperating Reservations.
- \* Continue compliance use inspections and follow-up inspections.
- \* Continue to communicate with nationwide Tribal pesticide enforcement programs through existing networks such as Tribal Pesticide Program Council (TPPC) and the Institute for Tribal Environmental Professionals (ITEP).

### ***Recreation***

- \* Implement a State/Tribal trail management plan for the Trail of the Coeur d'Alenes.
- \* Develop and update recreation codes that meet the needs of future Tribal activities.

### **Additional Elements Previously Discussed**

Please refer to Section 2.2 for a discussion of the additional elements of Alternative C which are

common to all of the alternatives. These elements include the following:

- \* Landscape 100-Year Desired Future Conditions
- \* Cultural 100-Year Desired Future Conditions
- \* Fire 20-Year Goals
- \* Environmental Health 20-Year Goals
- \* Solid/Hazardous Waste 20-Year Goals

### **2.3.4 Alternative D: Growth and Development**

This alternative recommends and provides guidance to maximize growth and development throughout the Reservation where it is not in conflict with either the natural and Tribal cultural resources, or existing land use designations and suitability.

The Desired Future Conditions (DFCs) for Alternative D prioritize growth and development throughout the Reservation. This alternative retains Tribal cultural and natural resources that are currently designated for protection, restoration, or enhancement. However, growth and development would be the priority in other areas. In addition, work to achieve the DFCs included in Section 2.2 in the Tribe's aboriginal territory.

#### **Land Use Recommendations**

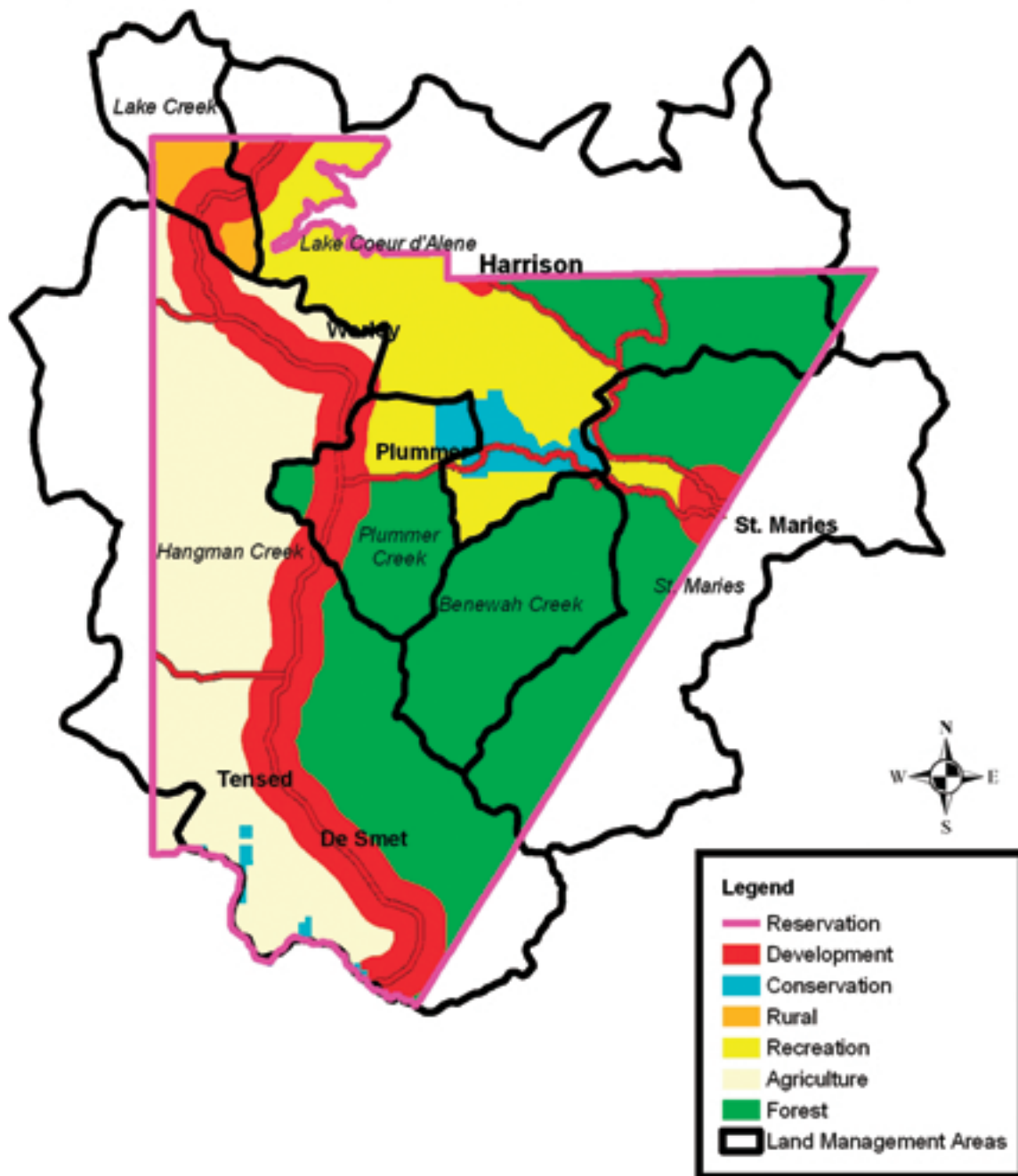
Using the LMRs described in Section 2.1, the Reservation has been divided into specific management areas in order to meet the 100-year DFCs for the landscape and culture resource categories and the 20-year goals for the natural and human resource categories common to all, as well as the specific goals and objectives of Alternative D. Although the land use recommendations outlined here pertain only to Reservation lands, these land uses are also recommended for application to each of the LMA watersheds beyond the Reservation boundaries (see Figure 2.1.1). Table 2.3.3, Land Management Recommendations Alternative D, displays the acreage associated with each management recommendation for the LMA watersheds. Figure 2.3.3 displays the land management recommendations for Alternative D.

**Table 2.3.3 Land Management Recommendations by Watershed Alternative D (in Acres)**

<i>Watersheds</i>	<i>LMR1 Development</i>	<i>LMR2 Conservation</i>	<i>LMR3 Rural</i>	<i>LMR4 Recreation</i>	<i>LMR5 Agriculture</i>	<i>LMR6 Forest</i>
Hangman Creek	40,356	1,176	0	0	72,791	31,824
Lake Creek	3,677	0	4,720	0	0	0
Plummer Creek	5,285	1,967	0	5,037	0	14,735
Benewah Creek	0	0	0	0	0	34,279
St. Maries/St. Joe	3,204	229	0	2,853	0	40,599
Lake Coeur d'Alene	3,387	5,843	88	43,063	0	2,197
Total	55,909	9,215	4,808	50,953	72,791	123,634



**Figure 2.3.3 Coeur d'Alene Tribe - IRMP  
Alternative D**



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by j.twoteeth 2/3/03

## **Natural Environment—100-Year Desired Future Conditions and 20-Year Goals**

The overall Natural Environment DFCs for Alternative D allow for maximum growth and development where not in conflict with the Tribal cultural and natural resources on Reservation lands. Resource specific elements are listed below.

### ***Air***

- \* Work to improve air quality to protect human health and ecology.

### ***Biodiversity***

- \* Develop and implement management plans to control non-native species of fish and wildlife.
- \* Develop and implement management plans to control noxious weeds.
- \* Retain current biodiversity and existing restoration plans and strategies. Allow for planned growth which is compatible with biodiversity.

### ***Coeur d'Alene Lake***

- \* Coordinate the development of a shoreline management plan.
- \* Allow for moderate development and recreational growth along Coeur d'Alene Lake.
- \* Emphasize recreation on Coeur d'Alene Lake as a higher priority than conservation.
- \* Implement and enforce the Tribe's encroachment program.
- \* Monitor Coeur d'Alene Lake conditions on an ongoing basis.
- \* Enhance opportunities for Tribal members to conduct subsistence activities.

### ***Fish***

- \* Continue to conserve existing habitat and implement habitat and species restoration in key watersheds.
- \* Restore bull trout populations to a level where adult escapement is well distributed, and at least six of the St. Joe River spawning tributaries support healthy spawning populations at any one time, and spawning is occurring in the Coeur d'Alene River portion of the basin.
- \* Protect stocks of genetically pure westslope cutthroat trout in Lake, Benewah, Evans and Alder Creeks to ensure their continued existence in the basin. Maintain catch rates of over 1.0 fish per hour in the St. Joe, Coeur d'Alene and St. Maries Rivers.
- \* Provide harvest opportunities that support limited Tribal subsistence activities and a limited sport-angler harvest. Maintain fisheries for introduced species to include an annual harvest of greater than 100,000 kokanee, greater than 1,000 chinook salmon, greater than 10,000 rainbow trout in Tribal catch-out ponds, and an average catch rate of greater than 0.5 fish per hour for largemouth bass.

### ***Forest***

- \* Maintain areas designated for a single or multi-story well stocked forest, providing goods and resources to the community without seriously conflicting with other natural resource elements. Enhance multiple use goals and practices on allotments and Tribal Trust Lands.

### ***Minerals***

- \* Allow for mineral exploration and material site excavation that is compatible with cultural and ecological values through proper permitting.

### ***Riparian***

- \* Continue implementing general and specific restoration plans in key watersheds.

### ***Soil***

- \* Encourage more minimum till and/or no-till farming techniques.

### ***Water***

- \* Follow and meet minimum management requirements for water quality.

### ***Wetlands***

- \* Restore proper functioning conditions to a minimum of 10 percent of the native riparian/wetland habitats to support the associated vertebrate species by the year 2024.

### ***Wildlife***

- \* Continue to conserve existing habitat and implement habitat restoration in critical areas.
- \* Establish and implement annual population monitoring of culturally important species.
- \* Adjust road closures as necessary to ensure protection of wildlife populations during critical periods.
- \* Protect and restore a minimum of 300 acres of Palouse Steppe.
- \* Designate 500 acres of moist coniferous forest for development of old growth conditions.
- \* Designate 500 acres of low elevation dry forest habitat for development of old growth open woodland conditions.

## **Human Environment—100-Year Desired Future Conditions and 20-Year Goals**

The overall DFCs for the human environment for Alternative D are to ensure the health and safety of the Coeur d'Alene Tribal members and Reservation residents while allowing planned growth and development.

### ***Agriculture***

- \* Retain existing farmland and allow for expansion where it is economically and ecologically feasible. Continue to grow wheat, barley, lentils, peas, and grass seed on suitable lands only.



SmLLene’ —“Place for Resting Ear”

- \* Reduce agricultural related erosion by use of BMPs.
- \* Allow chemical applications where it does not affect cultural and ecological values. Reduce agricultural chemical application by 10 percent.

### ***Development***

- \* Allow growth and development in designated areas where it is not in conflict with cultural and ecological values.

### ***Energy***

- \* Research, develop, and promote the use of alternative forms of energy.
- \* Explore all options for energy development.

### ***Housing***

- \* Allow for housing development where it is not in conflict with existing cultural and ecological values.

- \* Work with other entities and the public to establish habitat corridors and provide open space.
- \* Protect fish and wildlife habitat during construction using BMPs.

### ***Infrastructure***

- \* Build a transportation, power and telecommunications infrastructure to support the Tribal Government, public safety personnel (fire/medical/police), medical facilities, educational institutes, new development, and Reservation communities.
- \* Provide universal broadband services that are capable of integrating voice, data, and video, as well as other emerging technologies to meet expanded growth and development.

### ***Pesticides***

- \* Continue compliance use inspections and follow-up inspections.
- \* Continue to communicate with nationwide Tribal pesticide enforcement programs through existing networks such as TPPC and the ITEP.

### ***Recreation***

- \* Implement a State/Tribal trail management plan for the Trail of the Coeur d'Alenes.
- \* Develop and update recreation codes that meet the needs of future Tribal activities.
- \* Expand recreational use areas throughout the Reservation.

### **Additional Elements Previously Discussed**

Please refer to Section 2.2 for a discussion of the additional elements of Alternative D which are common to all of the alternatives. These elements include the following:

- \* Landscape 100-Year Desired Future Conditions
- \* Cultural Management Strategies 100-Year Desired Future Conditions
- \* Fire 20-Year Goals
- \* Environmental Health 20-Year Goals
- \* Solid/Hazardous Waste 20-Year Goals

## **2.4 Alternatives Not Considered in Detail**

No additional alternatives were identified or developed for the DPEIS. Based on the information from the public scoping, IDT, CAC, and public workshops, the alternatives presented here represent a reasonable range of options and include all resolved and unresolved issues.

## **2.5 Preferred Alternative**

The Coeur d'Alene Tribe has identified Alternative B Proposed Action, *Stqhesiple'* Integrated Resource Alternative as the Preferred Alternative. Alternative B provides for the best balance of



the physical, biological, social, and Tribal cultural elements to meet the Tribe's overall DFCs on the Reservation and the aboriginal territory.

## **2.6 Implementation, Monitoring and Amendment Process for All Alternatives**

### **Implementation and Monitoring**

Once a decision has been made by the Coeur d'Alene Tribe and the U.S. Bureau of Indian Affairs on which alternative is selected, a Record of Decision will be issued and published in the Federal Register. Once the decision is finalized, the National Environmental Policy Act (NEPA) process will be concluded. Once the NEPA process is completed, the Tribe will write the Integrated Resource Management Plan based upon the decision.

The implementation and monitoring plan outlined in Appendix F will be contained in the Integrated Resource Management Plan. This implementation and monitoring plan includes which Tribal program and/or department is responsible for implementing and monitoring each goal contained in the IRMP. An annual progress report on implementation and monitoring of the Plan will be collated by the Environmental Programs Office in the Natural Resource Department and delivered by the Natural Resource Director to the Tribal Council. This report will consist of information from each program or department that is responsible for goal implementation and will be as quantitative as possible.

It will be the responsibility of each Tribal program and department to be aware of the goals in the IRMP and to monitor specific resource or development activities for consistency with the decision in the DPEIS and the direction that will be outlined in the IRMP. Refer to Appendix G for an outline of a conceptual decision-making process for decisions that may affect natural, environmental or Tribal cultural resources (all ground-disturbing activities or plans that will lead to ground disturbance).

### **Amendment Process**

The Integrated Resource Management Plan, once it is written and approved, is expected to guide management of Tribal natural, environmental and Tribal cultural resources for the next 20 years. However, there may be a need to make small or large changes to the Plan prior to its revision in 20 years.

Amendments may be made at any time by the Coeur d'Alene Tribal Council. If the proposed amendments are sufficiently large enough to change the overall direction of the Tribe's management or if the issue is controversial, then the Environmental Programs Office in the Natural Resource Department may propose holding one or more public meetings to obtain input from Tribal members and other interested public. The Tribal Council will approve holding public meetings as appropriate or as mandated by applicable law.



## 2.7 Alternative Comparison

The tables in this section summarize the comparison of the alternatives for easier review. Table 2.7.1 compares the land management recommendations by LMR designation for all alternatives in acres. Table 2.7.2 contains the land use 100-year Desired Future Conditions and 20-year Goals common to all alternatives. Table 2.7.3 compares the 100-year DFCs and 20-year Goals for each alternative, and Tables 2.7.4 and 2.7.5 contain comparisons of the environmental, social, and economics consequences of each alternative. The detailed analysis of the environmental, social, and economics consequences is contained in Chapter 4 of this document.

**Table 2.7.1 Compares the Land Management Recommendations by LMR designation for all alternatives in acres (N/A means not applicable).**

<i>Land Management Recommendation</i>	<i>Alternative A No Action</i>	<i>Alternative B Preferred</i>	<i>Alternative C Conservation</i>	<i>Alternative D Growth</i>
Development LMR1	N/A	11,136	5,401	55,909
Conservation LMR2	N/A	76,149	172,502	9,215
Rural LMR3	N/A	61,123	0	4,808
Recreation LMR4	N/A	0	0	50,953
Agriculture LMR5	N/A	92,565	62,104	72,791
Forest LMR6	N/A	95,558	96,569	123,634

**Table 2.7.2 Contains the Land Use 100–Year Desired Future Conditions and 20–Year Goals Common to All Alternatives.**

<i>Land Management Recommendation</i>	<i>Alternative A No Action</i>	<i>Alternative B Preferred</i>	<i>Alternative C Conservation</i>	<i>Alternative D Growth</i>
Land Use Recommendations Common to All Alternatives	<ul style="list-style-type: none"> <li>• Restore and maintain Tribal cultural land use for subsistence activities as desired.</li> <li>• Maintain the rural character of the Reservation in all LMRs except for areas designated for development.</li> <li>• Encourage maintenance of existing farmland and forestland.</li> <li>• Encourage maintenance and restoration of wetlands, riparian areas, streams and forestland.</li> <li>• Discourage subdivision of property in all LMRs except for areas designated for development.</li> <li>• Develop a Land Use Plan for the Reservation, including a Shoreline Management Plan.</li> <li>• Develop open space plans for Reservation watersheds.</li> <li>• Utilize principles of conservation zoning to require conservation of open space identified in the plans when property is developed (Arendt 1999).</li> </ul>	Same as A	Same as A	Same as A

**Table 2.7.3 compares the 100–Year Desired Future Conditions and 20–Year Goals for each Alternative.**

<i>Resource Category</i>	<i>Alternative A No Action (and Common to All Alternatives)</i>	<i>Alternative B Preferred</i>	<i>Alternative C Conservation</i>	<i>Alternative D Growth</i>
Landscape	<ul style="list-style-type: none"> <li>• Increase Tribal involvement on all land use changes and development projects in the aboriginal territory and on the Reservation.</li> <li>• Increase Tribal staffing to consult on proposed developments throughout the aboriginal territory and on the Reservation.</li> <li>• Work with other entities to establish biodiversity corridors through already-developed areas that are linked with adjacent natural areas.</li> </ul>	Same as A	Same as A	Same as A
Culture	<ul style="list-style-type: none"> <li>• Preserve, protect, manage, and enhance Tribal culture.</li> <li>• Aggressively work with private, local, and federal entities to protect and manage traditional cultural resources and sites. Increase awareness regarding the significance of these resources.</li> <li>• Provide for education of traditional practices and Tribal history to non-native people.</li> <li>• Protect sacred and culturally significant sites and properties through the Tribal cultural program.</li> <li>• Build a Tribal Interpretive Center.</li> </ul>	Same as A	Same as A	Same as A

**Table 2.7.3** (continued)

<i>Resource Category</i>	<i>Alternative A No Action (and Common to All Alternatives)</i>	<i>Alternative B Preferred</i>	<i>Alternative C Conservation</i>	<i>Alternative D Growth</i>
<i>Natural Environment</i>				
Air Quality	<ul style="list-style-type: none"> <li>• At minimum, maintain air quality at the U.S. EPA status of a Class II Airshed (good air quality but not pristine).</li> <li>• Continue to monitor and collect air quality and meteorological (weather) data.</li> <li>• Reassess guidelines for air pollutants on a continuing basis.</li> <li>• Continue to develop working relationships with federal, state and local entities to network and form resource directories for pollution sources.</li> <li>• Increase education, outreach and mitigation for indoor air quality problems.</li> <li>• Develop a Tribal program to address point sources of air pollution.</li> </ul>	<ul style="list-style-type: none"> <li>• Work to improve air quality to protect human health and ecology.</li> </ul>	<ul style="list-style-type: none"> <li>• Achieve reductions in air pollutants to work toward reclassifying the Reservation as a U.S. Environmental Protection Agency Class I Airshed (pristine air quality and the same standard as found in most National Parks).</li> </ul>	<ul style="list-style-type: none"> <li>• Work to improve air quality to protect human health and ecology.</li> </ul>
Biodiversity	<ul style="list-style-type: none"> <li>• Coordinate with the local, state, federal, and private entities for the restoration and maintenance of species and habitats.</li> <li>• Encourage community involvement in caring for the natural biodiversity on the Reservation.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop and implement management plans to control non-native species of fish and wildlife by the year 2010.</li> <li>• Develop and implement management plans to control noxious weeds by the year 2006.</li> </ul>	<ul style="list-style-type: none"> <li>• Develop and implement management plans to control non-native species of fish and wildlife.</li> <li>• Develop and implement management plans to control noxious weeds.</li> <li>• Retain current biodiversity</li> </ul>	

<ul style="list-style-type: none"> <li>• Continue to offer outreach programs for area residents and youth to share information about biodiversity.</li> <li>• Involve Tribal elders in passing on knowledge of natural resources.</li> <li>• Initiate an educational curriculum for area schools to raise student awareness of ecological processes, environmental potentials and plant and animal diversity.</li> </ul>	<ul style="list-style-type: none"> <li>• Control noxious weeds by the year 2006.</li> <li>• Continue to offer outreach programs for area residents and youth to educate them about biodiversity.</li> <li>• Involve Tribal elders in passing on knowledge of natural resources.</li> <li>• Initiate an educational curriculum for area schools designed to raise student awareness of ecological processes, environmental potentials and plant and animal diversity.</li> </ul>	<p>and existing restoration plans and strategies. Allow for planned growth which is compatible with biodiversity.</p>
<p>Coeur d'Alene Lake</p> <ul style="list-style-type: none"> <li>• Continue to regulate all proposed encroachments within Tribal waters to provide safe recreational access, maintain shoreline beauty and protect biodiversity.</li> <li>• Minimize pollution caused by watercraft.</li> <li>• Promote active management and protection for native fishes in Coeur d'Alene Lake.</li> <li>• Implement programs to reduce non-point source and nutrient pollution in Coeur d'Alene Lake to improve and maintain water quality.</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinate the development of a shoreline management plan.</li> <li>• Implement and enforce the Tribe's encroachment program.</li> <li>• Monitor Lake conditions on an ongoing basis.</li> <li>• Create more opportunities for Tribal members to conduct subsistence activities in Coeur d'Alene Lake.</li> <li>• Manage commercial and recreational activities on Coeur d'Alene Lake.</li> </ul>	<ul style="list-style-type: none"> <li>• Coordinate the development of a shoreline management of a shoreline management plan.</li> <li>• Allow for moderate development and recreational growth along Coeur d'Alene Lake.</li> <li>• Emphasize recreation on Coeur d'Alene Lake as a higher priority than conservation.</li> <li>• Implement and enforce the Tribe's encroachment program.</li> <li>• Monitor Coeur d'Alene</li> </ul>

**Table 2.7.3** (continued)

<i>Resource Category</i>	<i>Alternative A No Action (and Common to All Alternatives)</i>	<i>Alternative B Preferred</i>	<i>Alternative C Conservation</i>	<i>Alternative D Growth</i>
Coeur d'Alene Lake (cont.)				<p>Lake conditions on an ongoing basis.</p> <ul style="list-style-type: none"> <li>• Enhance opportunities for Tribal members to conduct subsistence activities.</li> </ul>
Fire	<ul style="list-style-type: none"> <li>• Use fire for ecological restoration activities.</li> <li>• Work cooperatively to protect all structures on the Reservation from fire damage.</li> <li>• Develop fuel breaks in wildland urban interface and wildland areas to protect resource values and lives.</li> <li>• Develop a multi-year fire plan for prescribed burns and let burn activities for ecosystem maintenance, thereby reducing risks to wildland urban interface areas. Draft the plan in coordination with other Tribal resource managers and with other entities' fire plans.</li> <li>• As areas are restored to pre-settlement fire regimes, fire will be used to maintain these conditions.</li> </ul>	Same as A	Same as A	Same as A
Fish	<ul style="list-style-type: none"> <li>• Implement Tribal Fisheries Management Plans to achieve 20–Year goals and 100–Year DFCs.</li> <li>• Restore, protect, expand and reestablish fish populations in select areas to</li> </ul>	<ul style="list-style-type: none"> <li>• Protect, restore, and enhance existing terrestrial and aquatic fisheries habitat resources to meet increased demands (i.e. Tribal</li> </ul>	<ul style="list-style-type: none"> <li>• Protect, restore, and enhance existing terrestrial and aquatic habitat resources to meet increased demands (i.e.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue to conserve existing habitat and implement habitat and species restoration in key watersheds.</li> </ul>



sustainable levels to provide harvest opportunities.

- Encourage community involvement in caring for native fish populations and habitats.
- Develop cooperative agreements, design habitat restoration projects and pursue funding to accomplish fisheries goals.

cultural, subsistence, and recreational) on these resources.

- Restore bull trout populations to a level where adult escapement is well distributed, and at least six of the St. Joe River spawning tributaries support healthy spawning populations at any one time, and spawning is occurring in the d'Alene River portion of the basin. Harvest 1,000 fish annually from the Coeur d'Alene subbasin by the year 2020.

- Protect and restore remaining stocks of genetically pure westslope cutthroat trout to ensure their continued existence in the basin. Mainly from the Coeur d'Alene subbasin. Harvest 2,000 fish annually from the Coeur d'Alene River portion of the basin.

cultural, subsistence, and recreational) on these resources. Expand current fisheries restoration efforts on the Reservation to include Fighting Creek, Plummer Creek and Hells Gulch watersheds.

- |   |   |
|---|---|
| <p>► Restore bull trout populations to a level where adult escapement is well distributed, and at least six of the St. Joe River spawning tributaries support healthy spawning populations at any one time, and spawning is occurring in the Coeur d'Alene River portion of the basin. Harvest 2,000 fish annually from the Coeur d'Alene subbasin.</p> | <p>ing is occurring in the Coeur d'Alene River portion of the basin.</p> <ul style="list-style-type: none"> <li>• Protect stocks of genetically pure westslope cutthroat trout in Lake, Benewah, Evans and Alder Creeks to ensure their continued existence in the basin. Maintain catch rates of over 1.0 fish per hour in the St. Joe, Coeur d'Alene and St. Maries Rivers.</li> <li>• Provide harvest opportunities that support limited Tribal subsistence activities and a limited sport-angler harvest. Maintain fisheries for introduced species to include an annual harvest of greater than 100,000 kokanee, greater than 1,000 chinook</li> </ul> |
|---|---|

**Table 2.7.3** (continued)

<i>Resource Category</i>	<i>Alternative A No Action (and Common to All Alternatives)</i>	<i>Alternative B Preferred</i>	<i>Alternative C Conservation</i>	<i>Alternative D Growth</i>
<i>Fish (cont.)</i>		<p>population distribution throughout the tributaries to the basin.</p> <ul style="list-style-type: none"> <li>• Protect and enhance any remaining stocks of Red-band trout or other salmonids present in the Hangman watershed. Specifically, achieve good spawning populations in Mission Creek, Sheep Creek, Nehchen Creek and Indian Creek. Achieve good rearing habitat in the mainstem of Hangman Creek to allow migration of trout from the Spokane River.</li> <li>• Provide both short and long-term harvest opportunities that support Tribal subsistence activities and a sport-angler harvest. Maintain fisheries for introduced species to include an annual harvest of greater than 500,000 kokanee, greater than 5,000 chinook salmon, greater than 10,000 rainbow trout in Tribal catch-out ponds, and an average catch</li> </ul>	<p>of over 5,000 fish in Coeur d'Alene Lake and an annual catch of 15,000 fish from Lake, Benewah, Evans and Alder Creeks. Achieve good fish population distribution throughout the tributaries to the basin.</p> <ul style="list-style-type: none"> <li>• Protect and enhance any remaining stocks of Red-band trout or other salmonids present in the Hangman watershed. Specifically, achieve good spawning populations in Mission Creek, Sheep Creek, Nehchen Creek and Indian Creek. Achieve good rearing habitat in the mainstem of Hangman Creek to allow migration of trout from the Spokane River.</li> <li>• Provide both short and long-term harvest opportunities that support Tribal subsistence activities and a sport-angler harvest.</li> </ul>	<p>salmon, greater than 10,000 rainbow trout in Tribal catch-out ponds, and an average catch rate of greater than 0.5 fish per hour for largemouth bass.</p>

	rate of greater than 0.5 fish per hour for largemouth bass.	<ul style="list-style-type: none"> <li>• Maintain fisheries for introduced species to include an annual harvest of greater than 500,000 kokanee, greater than 5,000 chinook salmon, greater than 10,000 rainbow trout in Tribal catch-out ponds, and an average catch rate of greater than 0.5 fish per hour for largemouth bass.</li> </ul>
Forest	<ul style="list-style-type: none"> <li>• Continue to implement the Tribal Forest Management Plan on Tribal and allotted lands.</li> </ul>	<ul style="list-style-type: none"> <li>• Maintain areas designated for a single or multi-story well stocked forest, providing goods and resources to the community without seriously conflicting with other natural resource elements. Enhance multiple use goals and practices on allotments and Tribal trust lands.</li> <li>• Encourage forest restoration in identified areas where forested lands have been converted to agricultural areas.</li> <li>• Coordinate Tribal forest management practices with private forest land owners on the Reservation to provide consistent management.</li> <li>• Maintain areas designated for a single or multi-story well stocked forest, providing goods and resources to the community without seriously conflicting with other natural resource elements. Enhance multiple use goals and practices on allotments and Tribal trust lands.</li> <li>• Encourage forest restoration in identified areas where forested lands have been converted to agricultural areas.</li> <li>• Coordinate Tribal forest management practices with private forest land owners on the Reservation to provide consistent management.</li> </ul>

**Table 2.7.3** (continued)

<i>Resource Category</i>	<i>Alternative A No Action (and Common to All Alternatives)</i>	<i>Alternative B Preferred</i>	<i>Alternative C Conservation</i>	<i>Alternative D Growth</i>
Minerals	<ul style="list-style-type: none"> <li>Any mining conducted on the Reservation should be done in a manner which does not negatively affect surrounding lands, waters, biotic, or cultural resources.</li> </ul>	<ul style="list-style-type: none"> <li>Formulate an interdisciplinary team and implement a program to review all proposed mining activities and assess potential impacts based on submitted work plans by the year 2006.</li> <li>Develop a GIS database to track locations of all mining activities, including rock quarries and material sites.</li> <li>Review the federal mining code, research developing a Tribal Mining Code and, if warranted, write a Tribal Mining Code.</li> <li>Develop up to three additional Tribal aggregate mining sites (less than 5 acres each) when not in conflict with ecologically and culturally sensitive areas.</li> </ul>	<ul style="list-style-type: none"> <li>Formulate an interdisciplinary team and implement a program to review all proposed mining activities and assess potential impacts based on submitted work plans by the year 2006.</li> <li>Develop a GIS database to track locations of all mining activities, including rock quarries and material sites.</li> <li>Review the federal mining code, research developing a Tribal Mining Code and, if warranted, write a Tribal Mining Code.</li> <li>Minimize new aggregate site development.</li> </ul>	<ul style="list-style-type: none"> <li>Allow for mineral exploration and material site excavation that is compatible with cultural and ecological values through proper permitting.</li> </ul>
Riparian	<ul style="list-style-type: none"> <li>Protect, restore and enhance riparian areas.</li> <li>Encourage use of Tribal recommendations for minimum buffers on all Reservation streams (Appendix E).</li> <li>Encourage community involvement in</li> </ul>	<ul style="list-style-type: none"> <li>Inventory current riparian conditions in key watersheds to identify areas that are in need of restoration and to identify areas that currently function properly</li> </ul>	<ul style="list-style-type: none"> <li>Inventory current riparian conditions in key watersheds to identify areas that are in need of restoration and to identify areas that currently function properly</li> </ul>	<ul style="list-style-type: none"> <li>Continue implementing general and specific restoration plans in key watersheds.</li> </ul>

caring for riparian resources.	<p>and need protection by the year 2006 (key watersheds are Evans, Alder, Benewah, Lake and Hangman).</p> <ul style="list-style-type: none"> <li>• Prepare and implement general and specific restoration plans in key watersheds.</li> <li>• Develop a cost efficient means of replanting native vegetation and to stabilize streams in key watersheds.</li> <li>• Acquire riparian habitat for maintenance and/or restoration in key watersheds.</li> <li>• Work with landowners and agencies to provide cost share and incentives for riparian protection and restoration.</li> </ul>	and need protection by the year 2006.
Soil	<ul style="list-style-type: none"> <li>• Improve soil fertility through the use and monitoring of Best Management Practices (BMPs).</li> <li>• Improve soil permeability through the use and monitoring of BMPs.</li> </ul>	<ul style="list-style-type: none"> <li>• Reestablish trees or permanent cover on acreage with marginal soil classes.</li> <li>• Encourage more minimum till and/or no-till farming techniques.</li> <li>• Reestablish trees or permanent cover on acreage with marginal soil classes.</li> <li>• Promote more minimum till and/or no-till farming techniques.</li> <li>• Encourage more minimum till and/or no-till farming techniques.</li> </ul>
Water	<ul style="list-style-type: none"> <li>• Coordinate with other entities and the public to restore Reservation water quality standards.</li> <li>• Coordinate with other entities and the public to bring the 303(d)-listed water bodies into compliance with water quality standards through the implementation of the 303(d) water quality standards.</li> </ul>	<ul style="list-style-type: none"> <li>• Expand the Tribal Water Resource Program to bring Reservation streams and lakes into compliance with the Tribe's Water Quality Standards by the year 2024. Protect these streams and lakes from</li> <li>• Follow and meet minimum management requirements for water quality.</li> </ul>

**Table 2.7.3** (continued)

<i>Resource Category</i>	<i>Alternative A No Action (and Common to All Alternatives)</i>	<i>Alternative B Preferred</i>	<i>Alternative C Conservation</i>	<i>Alternative D Growth</i>
Water ( <i>cont.</i> )	<ul style="list-style-type: none"> <li>• mentation of Total Maximum Daily Loads (TMDLs) and Tribal water quality standards.</li> <li>• Encourage implementation of water quality-based BMPs on all Reservation streams.</li> </ul>	lakes from anthropogenic (human-caused) pollution.	anthropogenic (human-caused) pollution.	
Wetlands	<ul style="list-style-type: none"> <li>• Coordinate with other entities and the public to restore and maintain wetlands.</li> </ul>	<ul style="list-style-type: none"> <li>• Restore proper functioning conditions to a minimum of 30 percent (estimated at 6,425 acres) of the native riparian/wetland habitats support vertebrate species to that use these habitats by the year 2024.</li> </ul>	<ul style="list-style-type: none"> <li>• Restore proper functioning conditions to a minimum of 50 percent of the native riparian/wetland habitats to support vertebrate species that use these habitats.</li> </ul>	<ul style="list-style-type: none"> <li>• Restore proper functioning conditions to a minimum of 10 percent of the native riparian/wetland habitats to support the associated vertebrate species by the year 2024.</li> </ul>
Wildlife	<ul style="list-style-type: none"> <li>• Coordinate with other entities and the public to restore and maintain wildlife habitats and species across the Reservation, including Threatened and Endangered Species (TES).</li> <li>• Provide short and long term harvest opportunities that support both subsistence activities and limited sport harvest.</li> <li>• Continue to pursue and acquire funding to protect and/or restore key pieces of wildlife habitat such as wetlands, riparian areas and big game winter range.</li> </ul>	<ul style="list-style-type: none"> <li>• Reintroduce as many of the native extirpated (locally extinct) wildlife species within the Reservation as possible.</li> <li>• Control populations of non-native wildlife species within the Reservation, especially those that adversely affect native populations.</li> <li>• Establish and implement annual population monitoring of culturally important species.</li> </ul>	<ul style="list-style-type: none"> <li>• Reintroduce as many of the native extirpated (locally extinct) wildlife species within the Reservation as possible.</li> <li>• Control populations of non-native wildlife species within the Reservation, especially those that adversely affect native populations.</li> <li>• Establish and implement annual population monitoring of culturally important species.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue to conserve existing habitat and implement habitat restoration in critical areas.</li> <li>• Establish and implement annual population monitoring of culturally important species.</li> <li>• Adjust road closures as necessary to ensure protection of wildlife populations during critical periods.</li> <li>• Protect and restore a</li> </ul>



<ul style="list-style-type: none"> <li>• Encourage community involvement in caring for wildlife populations and habitats on the Reservation.</li> </ul>	<ul style="list-style-type: none"> <li>• Establish designated travel corridors that provide refuge for wildlife species.</li> <li>• Quantify the effects of predators on game species, particularly big game.</li> <li>• Establish a process of monitoring calving success on all big game species.</li> <li>• Designate summer and winter range for big game on the Reservation and manage fires and forest harvest to maximize forage availability on summer ranges.</li> <li>• Adjust road closures as necessary to ensure protection of wildlife populations during critical periods.</li> <li>• Protect and restore a minimum of 1000 acres of Palouse Steppe.</li> <li>• Designate 1000 acres of moist coniferous forest for development of old growth conditions.</li> <li>• Designate 2500 acres of low elevation dry forest habitat for development of old growth open woodland conditions.</li> </ul>	<ul style="list-style-type: none"> <li>• Establish designated travel corridors that provide refuge for wildlife species.</li> <li>• Quantify the effects of predators on game species, particularly big game.</li> <li>• Establish a process of monitoring calving success on all big game species.</li> <li>• Designate summer and winter range for big game on the Reservation and manage fires and forest harvest to maximize forage availability on summer ranges.</li> <li>• Adjust road closures as necessary to ensure protection of wildlife populations during critical periods.</li> <li>• Protect and restore a minimum of 1500 acres of Palouse Steppe.</li> <li>• Designate 2000 acres of moist coniferous forest for development of old growth conditions.</li> <li>• Designate 5000 acres of low elevation dry forest habitat for development of old growth open woodland conditions.</li> </ul>	<ul style="list-style-type: none"> <li>• minimum of 300 acres of Palouse Steppe.</li> <li>• Designate 500 acres of moist coniferous forest for development of old growth conditions.</li> <li>• Designate 500 acres of low elevation dry forest habitat for development of old growth open woodland conditions.</li> </ul>
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**Table 2.7.3** (continued)

<i>Resource Category</i>	<i>Alternative A No Action (and Common to All Alternatives)</i>	<i>Alternative B Preferred</i>	<i>Alternative C Conservation</i>	<i>Alternative D Growth</i>
<i>Human Environment</i>				
Agriculture	<ul style="list-style-type: none"> <li>• Reduce soil erosion through implementation of agricultural Best Management Practices (BMPs).</li> <li>• Encourage planting of perennial crops and utilizing no-till farming practices to reduce soil erosion.</li> <li>• Continue to research alternatives to agricultural field burning.</li> <li>• If feasible alternatives to agricultural field burning are developed, then implement them to reduce emissions.</li> </ul>	<ul style="list-style-type: none"> <li>• Retain existing farmland for future generations, restore marginal farmlands to forest lands. Continue to grow wheat, barley, lentils, peas and grass seed.</li> <li>• Reduce agricultural-related erosion by 25 percent by the year 2024.</li> <li>• Reduce the application of chemicals by 50 percent on agricultural lands by the year 2024.</li> <li>• Evaluate Tribal agricultural lands for productivity and determine the suitability of other resource values by the year 2006.</li> <li>• Work with other entities and the public to evaluate private, non-Trust agricultural lands for productivity and to develop management recommendations.</li> </ul>	<ul style="list-style-type: none"> <li>• Retain existing farmland for future generations and restore marginal farmlands to forestlands. Continue to grow wheat, barley, lentils, peas, and grass seed on suitable lands only.</li> <li>• Reduce agricultural related erosion by 40 percent.</li> <li>• Reduce the application of chemicals by 75 percent on agricultural lands.</li> <li>• Evaluate Tribal agricultural lands to determine suitability for other resource values.</li> <li>• Work with other entities and the public to evaluate private, non-Trust agricultural lands for productivity and to develop management recommendations.</li> </ul>	<ul style="list-style-type: none"> <li>• Retain existing farm land and allow for expansion where it is economically and ecologically feasible.</li> <li>• Continue to grow wheat, barley, lentils, peas, and grass seed on suitable lands only.</li> <li>• Reduce agricultural related erosion by use of BMPs.</li> <li>• Allow chemical applications where it does not affect cultural and ecological values. Reduce agricultural chemical application by 10 percent.</li> </ul>
Development	<ul style="list-style-type: none"> <li>• Coordinate land use and development patterns (planning and implement-</li> </ul>	<ul style="list-style-type: none"> <li>• Encourage well thought out development projects in</li> </ul>	<ul style="list-style-type: none"> <li>• Allow for controlled, well thought out construction in</li> </ul>	<ul style="list-style-type: none"> <li>• Allow growth and development in designated areas</li> </ul>

tation) between the Tribe, other entities and the public.	designated areas through sound planning. • Develop visually pleasing buildings that are complementary to the natural and cultural setting in environmentally suited areas. • Provide for a Tribal culturally specific built environment.	designated areas through sound planning. • Develop visually pleasing buildings that are complementary to the natural and cultural setting in environmentally suited areas in LMR1: Development.	where it is not in conflict with cultural and ecological values.
Energy	<ul style="list-style-type: none"> <li>• Research, develop, and promote the use of alternative energy and fuel sources such as wind, solar, hydrogen and others.</li> <li>• Promote the research and use of alternative technology to conserve energy and other resources.</li> <li>• Regulate the use and transport of nuclear materials on or through the Reservation consistent with federal law.</li> </ul>	<ul style="list-style-type: none"> <li>• Research, develop, and promote the use of alternative energy and fuel sources such as wind, solar, hydrogen, and others.</li> <li>• Promote the research and use of alternative technology to conserve energy and other resources.</li> <li>• Exclude energy sources that require the use of hazardous materials or require the transportation of hazardous materials.</li> <li>• Specifically, exclude the use and transport of nuclear materials on or through the Reservation.</li> </ul>	<ul style="list-style-type: none"> <li>• Research, develop, and promote the use of alternative forms of energy.</li> <li>• Explore all options for energy development.</li> </ul>
Environmental Health	• Assist in the proper design, construction and operation of schools,	• Same as A	• Same as A

**Table 2.7.3** (continued)

<i>Resource Category</i>	<i>Alternative A No Action (and Common to All Alternatives)</i>	<i>Alternative B Preferred</i>	<i>Alternative C Conservation</i>	<i>Alternative D Growth</i>
Environmental Health (cont.)	<p>day cares, private water and septic systems, food service facilities and community buildings for optimal public health and safety.</p> <ul style="list-style-type: none"> <li>• Strengthen the collaboration between Tribal Environmental Health, Benewah Medical Center and the State of Idaho's Panhandle Health District.</li> <li>• Work to eliminate the installation and operation of sub-standard water and sewer systems.</li> <li>• Eliminate vector-borne illnesses on the Reservation through the use of integrated programs for pest control, habitat management, and public education.</li> <li>• Develop programs to deal with chemical and physical hazards, including hazardous chemical spills, household hazardous chemicals, and preventable injuries.</li> <li>• Assist in the process to design, construct, and operate public water recreation facilities (including swimming pools, spas, waterslides, spray pools, and bathing beaches) to meet or exceed all applicable standards for sanitation and safety. Reduce or eliminate water-borne illnesses associated</li> </ul>			

with these types of facilities.

- Clearly define and expand the role of the Tribal Environmental Health Program.
- Collect data on potential contaminants and, if found, eliminate or mitigate.
- Continue State/Tribal cooperation with Idaho State inspections.
- Develop Tribal primacy where desirable and feasible.

## Housing

- Implement the Tribal Housing Authority Indian Housing Plan.
- Coordinate with other entities and the public to incorporate conservation subdivision designs into housing developments.
- Work with other entities and the public to create consistency between Tribal and non-Tribal housing plans, especially for the location and density of new housing.
- Work with other entities and the public to establish habitat corridors and provide open space.
- Protect fish and wildlife habitat during construction using BMPs.
- Allow for housing development where it is not in conflict with existing cultural and ecological values.
- Work with other entities and the public to establish habitat corridors and provide open space.
- Protect fish and wildlife habitat during construction using BMPs.

## Infrastructure

- Prepare a power and telecommunications master plan and incorporate it into the Tribal Comprehensive Plan, and Tribal Code.
- Work with Tribal and non-Tribal governments and the public to develop a coordinated transportation management plan for the Reservation.
- Continue to update and implement the
- Discourage developing new infrastructure except in LMR1: Development areas.
- Ensure that the transportation, power and telecommunications infrastructure supports the Tribal Government, public safety personnel (fire/medical/police), medical facilities, educational institutes, new development, and Reser-
- Ensure that the transportation, power and telecommunications infrastructure supports the Tribal Government, public safety personnel (fire/medical/police), medical facilities, educational institutes, planned new development,

**Table 2.7.3** (*continued*)

<i>Resource Category</i>	<i>Alternative A No Action (and Common to All Alternatives)</i>	<i>Alternative B Preferred</i>	<i>Alternative C Conservation</i>	<i>Alternative D Growth</i>
Infrastructure ( <i>cont.</i> )	<p>Tribe's transportation plan.</p> <ul style="list-style-type: none"> <li>• Coordinate a water/sewer management plan with counties and cities within the Reservation.</li> </ul>	<p>Reservation communities, access to farm and market roads and amenities suitable for a rural population.</p> <ul style="list-style-type: none"> <li>• Provide universal broadband services that are capable of integrating voice, data, and video, as well as other emerging technologies.</li> </ul>	<p>medical facilities, educational institutes, planned new development, Reservation communities, access for farm and market roads and amenities suitable for a rural population.</p> <ul style="list-style-type: none"> <li>• Provide universal broadband services that are capable of integrating voice, data, and video, as well as other emerging technologies.</li> </ul>	<p>vation communities.</p> <ul style="list-style-type: none"> <li>• Provide universal broadband services that are capable of integrating voice, data, and video, as well as other emerging technologies to meet expanded growth and development.</li> </ul>
Pesticides	<ul style="list-style-type: none"> <li>• Build/enhance relationships with the regulated community regarding Tribal pesticide enforcement activities on the Reservation.</li> <li>• Enhance relationships with the Idaho State pesticide program to improve communication and cooperative investigations.</li> </ul>	<ul style="list-style-type: none"> <li>• Continue to maintain, enforce and update the Coeur d'Alene Tribal Code and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) on Circuit Rider Cooperating Reservations.</li> <li>• Continue compliance use inspections and follow-up inspections.</li> <li>• Continue to communicate with nationwide Tribal pesticide enforcement programs through existing networks such as Tribal Pesticide Program Council (TPPC)</li> </ul>	<p>Same as B</p>	<ul style="list-style-type: none"> <li>• Continue compliance use inspections and follow-up inspections.</li> <li>• Continue to communicate with nationwide Tribal pesticide enforcement programs through existing networks such as TPPC and the ITEP.</li> </ul>



and the Institute for Tribal  
Environmental Professionals  
(ITEP).

Recreation	<ul style="list-style-type: none"> <li>• Manage the Reservation segment of the “Trail of the Coeur d’Alenes.”</li> <li>• Work closely with the State of Idaho to assure a seamless connection between State and Tribal portions of the Trail of the Coeur d’Alenes.</li> <li>• Develop a Tribal Recreation Plan.</li> <li>• Identify and develop additional recreational sites and parks as desired and appropriate.</li> <li>• Develop a boat launch and campsite.</li> <li>• Aid in the development of Camp Larson (recreation facility) planning and operations.</li> </ul>	<ul style="list-style-type: none"> <li>• Implement a State/Tribal trail management plan for the Trail of the Coeur d’Alenes.</li> <li>• Develop and update recreation codes that meet the needs of future Tribal activities.</li> </ul>	Same as B	Same as B, plus Expand recreational use areas throughout the Reservation.
Solid and Hazardous Waste	<ul style="list-style-type: none"> <li>• Properly store, transport, handle, and dispose of hazardous materials on the Reservation.</li> <li>• Coordinate with other entities and the public to develop a solid waste management plan for the Reservation.</li> <li>• Promote source reduction, composting, reuse and recycling of solid wastes.</li> </ul>	Same as A	Same as A	Same as A

**Table 2.7.4 is a comparison of the environmental consequences of each alternative.**

<i>Resource Category</i> • <i>Indicator</i>	<i>Alternative A</i> <i>No Action</i>	<i>Alternative B</i> <i>Preferred</i>	<i>Alternative C</i> <i>Conservation</i>	<i>Alternative D</i> <i>Growth</i>
Landscape	Major	Moderate	Minor	Major
• Habitat loss, fragmentation, and native species decline.				
Culture	Major	Moderate	Minor	Major
• The alteration of resource conditions related to the Tribe's subsistence activities, cultural practices, and beliefs.				
Cultural Resources	Adverse Effect	No Adverse Effect	No Adverse Effect	Adverse Effect
• Changes in land use, expansion of development, and loss of structure or place.				
• Compliance with the National Historic Preservation Act.				
<i>Natural Environment</i>				
Air Quality	Moderate	Minor	Negligible	Major
• Compliance with the Clean Air Act.				
Biodiversity	Moderate	Minor	Negligible	Major
• The loss of habitat, habitat fragmentation, and migration corridor loss of connectivity from agriculture, forestry, recreation, human population growth, roads, and other human impacts.				
Coeur d'Alene Lake	Moderate	Minor	Minor	Major
• Changes in quality of habitat for native species.				
• Changes in water quality parameters.				
• Number of encroachments on Tribal waters.				
• Trends in recreational use of the Lake.				
• Ability to conduct Tribal cultural and subsistence activities on the Lake.				

Fire	Minor	Minor	Minor	Minor
• Changes or loss of habitat from fire and fire suppression.				
• Changes in agricultural lands from continued burning.				
Fish	Moderate	Minor	Negligible to Minor	Major
• Loss of naturally producing populations of native fish.				
• Change (increase or decrease) in abundance and distribution of native fish.				
• Watershed road density.				
• Riparian road index.				
• Percent altered riparian vegetation.				
• Equivalent clearcut area.				
Forest	Moderate	Minor	Negligible to Minor	Major
• Forest diversity in terms of structure, density and distribution.				
• Loss of old growth and age class distribution of the forested areas.				
• Sustainable yield in forested areas.				
Minerals	Minor	Minor	Minor	Minor
• Number of new mining sites (aggregate) on the Reservation.				
Riparian	Moderate Adverse	Moderate Beneficial	Major Beneficial	Major Adverse
• Loss of riparian habitats and shoreline areas.				
Soil	Moderate	Minor	Negligible	Moderate
• Erosion potential and rates.				
• Loss of chemical fertility, organic matter, and microorganisms.				
Water	Moderate	Minor	Minor	Major
• Impacts on water quality and quantity from agricultural practices, transportation systems, forestry practices, water systems, human habitation, and other human impacts.				
Wetlands	Moderate	No impact	No impact	Major
• Loss of wetlands from agriculture, forestry, transportation, grazing, human habitation, and other human impacts.				

**Table 2.7.4** (*continued*)

<i>Resource Category</i> • <i>Indicator</i>	<i>Alternative A</i> <i>No Action</i>	<i>Alternative B</i> <i>Preferred</i>	<i>Alternative C</i> <i>Conservation</i>	<i>Alternative D</i> <i>Growth</i>
Wildlife	Moderate adverse	Minor adverse	Moderate Beneficial	Major adverse
• Impacts on native wildlife species and native wildlife species, habitat from agricultural practices, forestry practices, transportation systems, recreation practices and human habitation.				
TES Species				
Gray Wolf	No effect	No effect	No effect	May affect, not likely to adversely affect
Bald Eagle	May affect, not likely to adversely affect	May affect, not likely to adversely affect	May affect, likely to beneficially affect	May affect, likely to adversely affect
Canada lynx	No effect	No effect	No effect	May affect, not likely to adversely affect
Bull Trout	May affect, not likely to adversely affect	May affect, not likely to beneficially affect	May affect, likely to beneficially affect	May affect, likely to adversely affect
Water howellia	No effect	No effect	No effect	May affect, not likely to adversely affect
Ute Ladies' Tresses	No effect	No effect	No effect	May affect, not likely to adversely affect

## *Human Environment*

Agriculture	<ul style="list-style-type: none"> <li>Changes in acreage of agricultural lands within the Reservation.</li> </ul>	Moderate	Moderate	Major
Development	<ul style="list-style-type: none"> <li>Loss of natural environment to development.</li> </ul>	Negligible	Major	Negligible
Energy	<ul style="list-style-type: none"> <li>Number of acres in use for energy transmission or development.</li> </ul>	Negligible	Minor	Negligible
Environmental Health	<ul style="list-style-type: none"> <li>Continuation and expansion of the Tribal Environmental Health Program.</li> <li>Improvement in Reservation morbidity and mortality statistics affected by on-going environmental health programs.</li> <li>Sustained improvement in mean inspection scores for all types of facilities undergoing routine environmental health and safety inspections.</li> <li>Development of baseline statistical data for all environmental health core program areas.</li> <li>Reduction in preventable injuries attributable to chemical and/or physical hazards.</li> <li>Improvement in chemical and bacteriological water quality for individual water systems.</li> <li>Clean up of existing open dumpsites and monitoring of potentially hazardous abandoned landfill sites.</li> <li>Increased public/environmental health awareness resulting from health education and community outreach activities.</li> </ul>	Negligible (Beneficial)	Negligible (Beneficial)	Negligible (Beneficial)
Housing	<ul style="list-style-type: none"> <li>The number, type, and location of new houses and subdivisions.</li> </ul>	Negligible	Moderate	Negligible
Infrastructure	<ul style="list-style-type: none"> <li>Number of acres used for infrastructure.</li> </ul>	Negligible	Moderate	Negligible

**Table 2.7.4** (*continued*)

<i>Resource Category</i> • <i>Indicator</i>	<i>Alternative A</i> <i>No Action</i>	<i>Alternative B</i> <i>Preferred</i>	<i>Alternative C</i> <i>Conservation</i>	<i>Alternative D</i> <i>Growth</i>
Pesticides	Negligible	Moderate	Major	Negligible
• The extent or area of pesticides use.				
• The type and effects of pesticides used.				
Recreation	Negligible	Moderate	Major	Negligible
• Changes in acreages and number of developed recreation and water recreation facilities and locations.				
Solid and Hazardous Waste	Beneficial	Beneficial	Beneficial	Beneficial
• Amount of solid waste generated on the Reservation.				
• Amount of hazardous materials stored on or transported through the Reservation.				
Land Use	Moderate short-term Major long-term	Moderate	Minor	Major
• Changes in land use from current land use.				



**Table 2.7.5 Social and Economics Consequences for each alternative.**

Quality of Life Criteria	Alternatives Considered			
	Alternative A	Alternative B	Alternative C	Alternative D
Economic & Subsistence	Moderate damage to subsistence resources. Minor declines in fairness and equity. Minor expansion in ability to earn a living.	Moderate improvements in quality of subsistence resources, fairness and equity.	Major improvements in quality of subsistence resources, fairness and equity.	Major damage to subsistence resources. Moderate decline in fairness and equity. Minor expansion in ability to earn a living.
Spiritual / Moral	Moderate damage to culture, traditions, and religion. Minor improvement in freedom to make private choices.	Moderate improvements in protection of culture, traditions, and religion. Minor restrictions on freedom to make private choices.	Major improvements in the protection of culture, traditions, and religion. Minor restrictions on freedom to make private choices.	Major damage to the protection of culture, traditions, and religion. No restrictions on freedom to make private choices.
Aesthetics	Moderate damage to the recreation, natural beauty; open space.	Moderate improvements in natural beauty, open space, and recreation opportunities.	Major improvements in natural beauty, open space, and recreation opportunities.	Major damage to natural beauty, open space and undeveloped recreation opportunities. Moderate expansion of commercial recreation.
Community Well-Being	Moderate damage to future generations, cultural diversity, and land integrity.	Moderate improvements in projection of future generations, cultural diversity, and land integrity.	Major improvements in protection of future generations, cultural diversity, and land integrity.	Major damage to future generations, cultural diversity, and land integrity.

**Table 2.7.5** (cont.)

Quality of Life Criteria	Alternatives Considered			
	Alternative A	Alternative B	Alternative C	Alternative D
Personal Well-Being	Minor improvements in income. Minor threats to health and peace of mind.	Minor improvements in income. Maintenance of health and peace of mind.	Negligible improvements in income. Improvement in health and peace of mind.	Minor improvements in income. Moderate threats to health and peace of mind.
Indicators:				
Impacts:	Moderate negative	Moderate positive	Major positive	Major negative
<ul style="list-style-type: none"><li>• Changes in rural character of the quality of life.</li><li>• Change and composition of population.</li><li>• Change, quality, and distribution of employment opportunities.</li><li>• Change and distribution of real personal income.</li></ul>				

## Chapter 3

### Affected Environment

*Before the coming of Human Peoples, the world was inhabited by powerful Animal Peoples, or “First Peoples”. Coyote, Crane, and Chief Child of the Yellow Root were the most prominent, and through their actions the world was prepared for the coming of the Human Peoples. (Frey and the Schitsu’umsh 2000)*

#### Introduction

The purpose of this chapter is to describe the existing or affected environment, including conditions and trends that could be affected by the alternatives described in Chapter 2. The description’s focus is the lands and waters of the Coeur d’Alene Reservation, but includes the Tribe’s aboriginal territory where appropriate. Information about the landscape, Tribal cultural, natural, and human environment is provided to describe more fully the statement of needs explained in Chapter 1, and lay the foundation for understanding and evaluating the alternatives discussed in Chapters 2 and 4.

This chapter focuses on those portions of the environment that are directly related to the conditions and resource categories being addressed by the alternatives with the exception of the addition of the Land Use, Social and Economics categories. The description is not meant to be a complete portrait of the study area, but is intended to portray the conditions and trends of most concern to the Coeur d’Alene Tribe, the public and agencies involved in the management of the Reservation at the broad scale.

#### 3.1 Landscape

The Coeur d’Alene, who call themselves the *Schitsu’umsh*, “the ones that were found here”, were placed by the Creator in what would become the Panhandle region of Idaho. It was a landscape of some 5,000,000 acres of diversity with fir, ponderosa pine, white pine and cedar-forested mountains with freshwater rivers, lakes and a multitude of wetland complexes and marshlands. The rolling hills and prairie were covered with perennial bunchgrass, fescue wheat grass, camas and many other plants significant to the Tribal culture and subsistence of the Coeur d’Alene. The territory of the Coeur d’Alenes extended from Lake Pend Oreille in the north to the Bitterroot Range of Montana in the east to the Palouse and North Fork of the Clearwater Rivers in the south to Steptoe Butte and up to just east of Spokane Falls in the west. At the heart of this region was

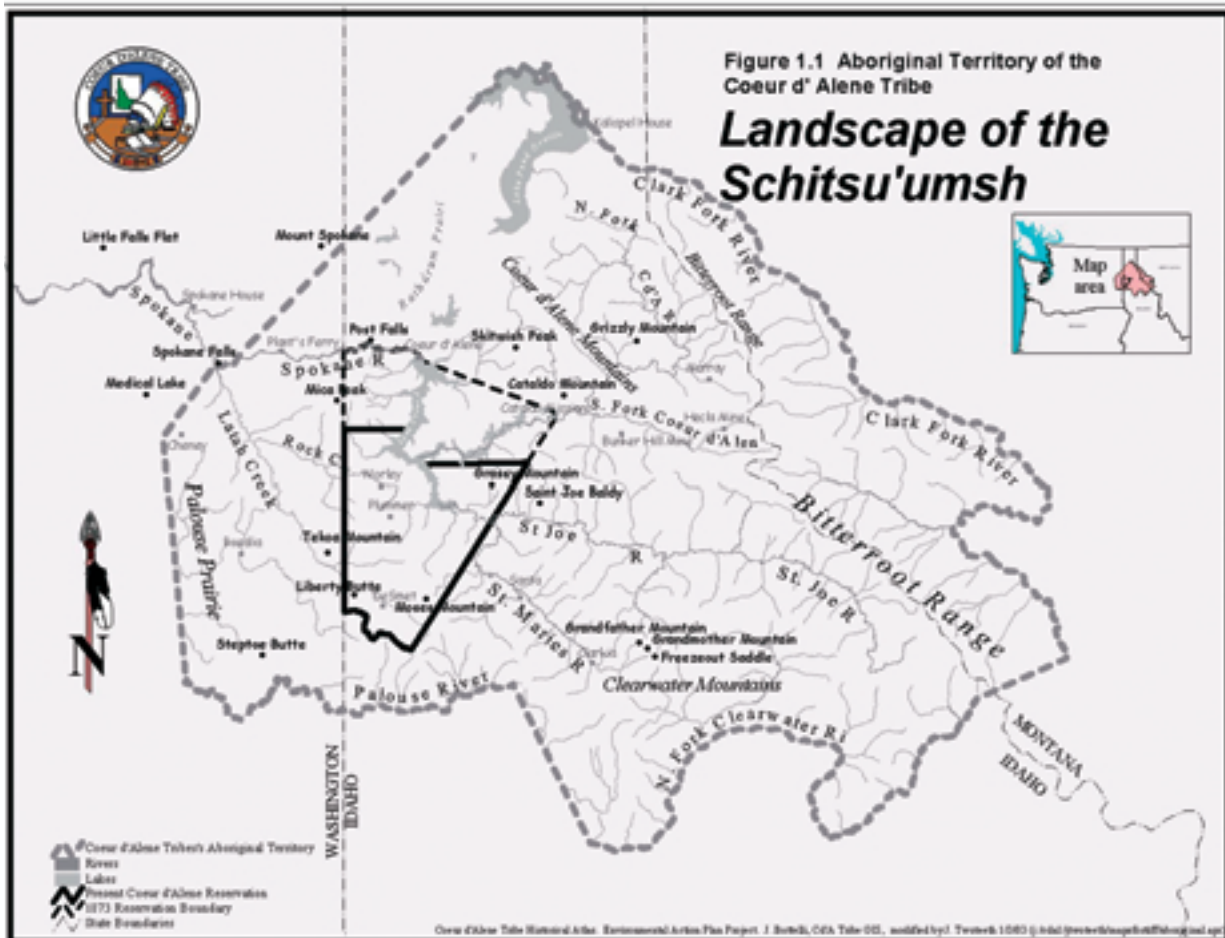


Coeur d'Alene Lake

Coeur d'Alene Lake. It was a homeland abundant with “gifts” from the Creator provided by Animal Peoples that sustained more than 5,000 Coeur d'Alenes (Frey and the Schitsu'umsh 2000).

Through a series of Executive Orders of 1867, 1873, 1887, and 1889, the Coeur d'Alene Reservation was established and the original land base of the Coeur d'Alene people significantly reduced. Much of the Tribe's former territory was acquired without compensation for ceded lands. The 1887 agreement also resettled many Spokane families onto the Coeur d'Alene Reservation. Also in 1887 came the passage of the General Allotment Act, also known as the Dawes Act, authorizing the President to allot portions of reservation land to individual Indians. Allotments of 160 acres were to be made to each head of family and 80 acres to others. Title to the allotted lands was to remain in the United States in trust for 25 years, after which it was to be conveyed to the Indian allottee in fee free of all encumbrances. Unallotted land was called “surplus” and opened up for homesteading by non-Indians. In 1906, the Allotment Act was implemented on the Coeur d'Alene Reservation, resulting in a massive loss of Tribal land holdings, rendering most agricultural practices infeasible, and an opening up of “unused” Reservation lands to non-Indian ownership. By 1921, the once-successful Tribal farmers were reduced to only four Coeur d'Alene families that were able to productively continue farming their allotments (Frey and the Schitsu'umsh 2000).

Currently, the aboriginal territory of the Coeur d'Alene Tribe contains several cities including



### Aboriginal Territory

Spokane, Coeur d'Alene, Sandpoint, and Post Falls. The area has been used and is currently used for Tribal subsistence and cultural activities, agriculture, forestry, mining, industrial/commercial, and recreation. The Tribe currently is solicited and consults with local, state, federal, and Tribal entities regarding land use changes or projects that would change land classification to protect Tribal and environmental values (which are often the same) across the landscape. The Tribe is very active in maintaining Tribal cultural and ecological values throughout the aboriginal landscape with the understanding that growth should be consistent with proper planning and land capability.

## 3.2 Cultural

The Cultural Affected Environment is divided into three Sections. The Tribal Culture and Subsistence Section 3.2.1, describes the Coeur d'Alene Tribal Culture, and the lifestyle that is maintained based on that Tribal culture. Section 3.2.2 discusses the laws and regulations directing federal agencies to locate, identify, evaluate, preserve, protect and manage Tribal cultural resources significant to the heritage and history of the area. Section 3.2.2 also discusses the existing sacred sites and traditional cultural properties.



### ***3.2.1: Tribal Culture and Subsistence***

Before the coming of Human Peoples, the world was inhabited by powerful Animal Peoples, or “First Peoples” (Frey and the Schitsu’umsh 2000). Coyote, Crane, and Chief Child of the Yellow Root were the most prominent, and through their actions the world was prepared for the coming of the Human Peoples. This was a time when great monsters were slain, the features of the landscape were formed and implanted with “gifts” to sustain body and spirit, and the ceremonies, social practices and “teachings” necessary to bring order and happiness to the *Schitsu’umsh* or Coeur d’Alenes.

During this time the Human Peoples were created and placed on their respective lands. To the west and northwest of the Coeur d’Alene were the Spokane and Kalispel, the north and northeast the Kootenai and Pend Oreille, to the east the Flathead, and placed to the south and southwest of the Coeur d’Alene were the Nez Perce and Palus (Frey and the Schitsu’umsh 2000).

Traveling by canoes along the waterways and by foot over the dirt trails, the Coeur d’Alene families followed well-established, seasonal patterns of movement throughout the landscape and beyond (Frey and the Schitsu’umsh 2000). Their canoes were fashioned from long strips of bark from either cedar or pine trees. In the spring the winter villages located along the shores of Coeur d’Alene Lake and banks of the St. Joe, Spokane, and Coeur d’Alene Rivers were abandoned for the root gathering areas located in the prairie country. Primarily there were 16 species of root relied upon including bitterroot, camas, and cous. During the spawning runs of spring and into the fall, families also traveled to the fishing areas. As anadromous fish did not enter Lake Coeur d’Alene, chinook and sockeye salmon and steelhead trout were fished and traded for at locations such as Spokane Falls, Kettle Falls and as far away as Celilo Falls. During these trading gatherings, the Coeur d’Alene would exchange dried venison and deer hides for salmon, and renew social ties with dancing and feasting (Frey and the Schitsu’umsh 2000).

During the summer, individuals, both men and women, could be found in the adjacent mountains, fasting and seeking visions. As with preparations for a hunt or travel into a distant country, a sweat bath would often precede the journey to a fasting site. The small, dome-shaped, earth-covered lodge might be addressed as “Grandmother” or “Great Grandfather of Grandfathers.” In the steamed-heat, prayer would be offered and bodies and souls spiritually renewed and cleansed.

By mid-summer and into early fall, the last of the camas would have been dug and the berry picking would begin. Twenty-two types of berries were gathered, primary among them chokecherry, huckleberry, and serviceberries. As with the root digging, fishing, and game hunting, prayer would precede the activities associated with gathering berries. In late fall the “water potato” was gathered along the marshy regions of Coeur d’Alene Lake. Of all the regional Tribes, only the Coeur d’Alene gathered this particular root (Frey and the Schitsu’umsh 2000).

The fall was the season for intensive game hunting, including reliance on white-tail deer, mule deer, elk, moose, and black bear. The deer and elk were often addressed as “Brothers” and would “offer themselves up” only to deserving and respectful hunters. As with the roots and berries gathered, and fish caught, a portion of the meat from the hunt would be freely given to families and individuals most in need (Frey and the Schitsu’umsh 2000).



With the coming of winter, the families would return to their village sites along the lake's shore and rivers' banks. These were the sites of the "long communal houses." Up to 90 feet in length, the lean-to lodges were constructed with poles and coverings made of tule reeds tied into mats. The communal lodges could accommodate several families, each represented by a separate "fire pit." Conical structured, tule-mat covered lodges were also used. There is no evidence of use of the semi-subterranean pit house typically used by other Tribes in the region.

During the long winter nights, the elders would re-tell the oral traditions of Coyote, Crane, and Chief Child of the Yellow Root, the young learning of and the old renewing in the "teachings" offered. Communal deer hunting and ice fishing would continue throughout the winter, culminating in a yearly subsistence-cycle in which roots and berries, fish and salmon, and game meat each contributed about a third to the total diet of the Coeur d'Alene (Frey and the Schitsu'umsh 2000).

The goal of the cultural assessment is the preservation and restoration of Coeur d'Alene Tribal culture through maintaining the landscape's ability to provide for Tribal subsistence practices such as root and berry gathering, fishing, and hunting.

### ***3.2.2: Cultural Resources and Traditional Cultural Properties***

This section includes the National Historic Preservation Act of 1966, as Amended, and its implementing regulations and the Archeological Resources Protection Act of 1979. These regulations require federal agencies to make determinations of eligibility, effect, and treatment in con-



Men on horses in DeSmet

sultation with the Advisory Council on Historic Preservation. This also directs federal agencies on how they should implement and manage cultural resource protection throughout the landscape. Traditional cultural properties refer to areas within the landscape that are considered sacred or are ceremonial or spiritual in nature (mountains, land areas, structures, plants and animals) in the past and currently. These properties may be listed in the National Register of Historic Places.

Executive Order (EO) 13007 provides that federal agencies, to the extent practicable, permitted by law and consistent with essential agency functions, accommodate access and avoid impacts to the physical integrity of sacred sites. During the IRMP planning process, the Coeur d'Alene Tribe specifically identified no site as a sacred site due to the programmatic nature of the document. However, as site-specific projects are undertaken, the Tribe will protect cultural resources and traditional cultural properties in compliance with Tribal traditions, the National Historic Preservation Act and with EO 13007. Management of cultural resources and traditional cultural properties is implemented through the Tribe's Culture Committee and the Natural Resource Department.

### **3.3 Natural Environment**

The history and Tribal culture of the Coeur d'Alenes are ageless and interwoven in the natural environment. As the Animal Peoples had originally prepared the world, they continued to prepare and nurture the lives of individual Human Peoples with the gifts of the natural environment so long as the people are responsible and care for the gifts given them. For the Coeur d'Alenes, without the natural environment there is no past, present, or future.

#### **3.3.1 Air Quality**

To the Coeur d'Alenes, one of the many gifts left by the Animal Peoples, as important to the Human Peoples as the water, was air. Without the gifts of air and water there was no beginning. The understanding of the importance of environmental factors and the reverence towards them is deeply embedded in Coeur d'Alene Tribal culture.

##### **3.3.1.1: Indoor Air Pollution**

Despite the fact that most people spend the vast majority of their time indoors, very little information exists on indoor air quality. However, a number of known sources of indoor air pollution exist on the Reservation, including wood stoves, gas furnaces, second-hand tobacco smoke, synthetic building materials, molds and bacteria, pesticides, harsh cleaning chemicals and indoor radon.

Nearly 4,000 chemical compounds are found in tobacco smoke; more than 50 are known or suspected human carcinogens. Smoke from wood-burning stoves and fireplaces has been shown to contain 17 priority pollutants and up to 14 carcinogens.

Radon is a natural source of radiation that can become concentrated indoors and is an indoor air concern in many areas. Based on results of 1998 radon testing on the Reservation, about 7 percent of a total of 169 tests exceeded the federal "action level".

Based on other comparative risk projects, the next highest cancer risks in indoor air after radon

and environmental tobacco smoke are attributed to volatile organic compounds, especially formaldehyde. The principal indoor sources of formaldehyde are pressed wood (particle board), urea-formaldehyde foam insulation, and household cleaning agents (Coeur d'Alene Tribe 2000b).

### **3.3.1.2: Outdoor Air Pollution**

Outdoor air pollution is regulated under the federal Clean Air Act. To measure outdoor air quality, regulators use six “criteria pollutants” as indicators of air quality, and the Environmental Protection Agency has established maximum concentrations for each of them, above which effects to human health may occur. The six criteria pollutants include:

- particulate matter (PM10 and PM2.5)
- carbon monoxide (CO)
- ozone (O3)
- sulfur dioxide (SO2)
- lead (Pb)
- nitrogen dioxide (NO2)

The EPA has recently divided the particulate matter criterion into two separate criteria: “PM10”, which was previously the only particulate criterion, and which includes particulates less than 10 but greater than 2.5 microns in diameter; and “PM2.5”, which is a new criterion and which includes all particulates less than 2.5 microns in diameter. A micron is one-millionth of a meter. The new PM2.5 standard is in response to recent studies that show the very fine particles from combustion-related sources (such as vehicle emissions, power plants, wood burning, agricultural burning and other industrial and residential sources) cause greater health effects than the larger PM10, which may include road and agricultural dust.

Based on several years of monitoring, Spokane County, which borders the Reservation to the west, has determined the primary causes of air quality degradation in the county include *wood burning*, *field burning*, and *road dust*. Although monitoring of outdoor air quality on the Reservation is limited, wood burning, field burning, and road dust also appear to be the primary causes of air quality problems on the Reservation.

Particulate matter, the term for everything non-gaseous found in the air, is the criteria pollutant most commonly associated with all of these air pollution sources. In Spokane County, particulate matter comes mostly from wood burning and dusts from unpaved and paved roads. During the months of August and September, however, 50 to 75 percent of particulates in Spokane come from the burning of bluegrass in eastern Washington and northern Idaho. Burning of wheat stubble is also conducted during this period.

During 1997, the Tribe conducted particulate matter monitoring throughout the Reservation. No air quality exceedances for PM10 were observed during this period. However, information indicates the greatest air quality threat to health is the peaks of pollution occurring for short periods (Coeur d'Alene Tribe 2000b). The Tribe recently built a meteorological station in Plummer

and is also currently collecting data on the Reservation for PM2.5 but results are too preliminary to report.

### **3.3.2 Biodiversity**

The Coeur d'Alene people view the lakes and rivers, and the surrounding mountains with deer and camas as family. These are some of the components of the biological diversity (biodiversity) throughout the Reservation and the aboriginal territory. To think of these biological components as family is clear insight to the importance of landscape and biological diversity to the Coeur d'Alene Tribe.

Biodiversity refers to the diversity of life in all its forms and all its levels of organization, not just the diversity of plant, animal, and microorganism species. At the basic level, biological diversity even includes the organic molecules that comprise the genetic basis of life. On the other end of the spectrum there are biomes: These are the vast stretches of tundra, desert, forest, and ocean that reflect the planet's diversity of climate and physical form. In between are a multitude of levels of organization including population, race, subspecies, community, and ecosystems all as components of the larger concept, biological diversity.

The fundamental reason for managing for diversity is simple: all life forms have value. The Coeur d'Alene Tribe knows this; it is within the Tribe's culture. Aldo Leopold wrote in 1949 *"The last work in ignorance is the man who says of an animal or plant: 'What good is it?' If the land mechanism as a whole is good, than every part is good, whether we understand it or not . . . To keep every cog and wheel is the first precaution of intelligent tinkering."* However, there are two significant problems with measuring biological diversity. First, the classification schemes do not exist except at the species level of organization. The second is that even species diversity is extremely difficult to thoroughly measure. In order to establish the base line for the Reservation for biodiversity we will consider that every species has a unique set of habitat requirements, an ecological niche consisting of its preferred physical environment. In this Chapter we will use existing information in an effort to establish the types, amounts, and distribution of the flora and fauna on the Reservation to understand the present nature of biodiversity on the Reservation. Appendix H has a list of species common to the Reservation lands including culturally significant species.

Historically, the Reservation and aboriginal territory had a diversity of species. The abundance of water, forests and transitional lands, prairie, and wetland complexes provided terrestrial and aquatic species with various structure and components of habitat. Forest types once dominated by large, mature or old growth ponderosa pine and white pine have been lost. Total white pine populations have been greatly reduced due to timber harvest, natural fire and blister rust. Palustrine wetlands have been converted to other land uses and an estimated 114,000 acres of combined forest, grassland, and shrub types have also been converted to agriculture, housing, and development.

The loss of wetland, forest, shrub and grassland habitat has an impact on plant species populations, diversity, and connectivity of habitat. Grizzly bears, Canadian lynx, gray wolf, wolverines and woodland caribou populations may have been extirpated from the Reservation due to these

losses of habitat. Native populations of steelhead and salmon, in Hangman Creek, are extinct and Cutthroat trout and bull trout populations are severely depressed throughout the Reservation. Even with these changes, the landscape and Reservation are considered to still have a moderate to high landscape diversity based on the type and abundance of species and habitat remaining. However, the trend for some species is currently downward. In the following Sections we will discuss these species and trends in order to assess the impacts of the alternatives on biodiversity.

In general, all agricultural practices tend to result in the reduction of native plant populations and diversity. Conversion of native plant communities to monoculture crops eliminates native plant communities. Chemical use, cultivation and grazing can also affect plant species on croplands and adjacent areas, affecting both population and diversity. Agricultural development is believed to have caused the loss of an estimated 21,417 acres of Palustrine Wetland plant communities on the Reservation. The majority of this loss is in Hangman Creek.

Impacts of agricultural practices on animal populations and diversity are determined by the extent of habitat alteration, which occurs as the result of that practice. Obviously, impacts to populations and species diversity can be significant through indirect alteration of habitat (Ratti and Scott 1991). Chemical insecticides can cause direct toxicity to birds, and also reduce insect populations used as food sources (Weigand 1980; Green 1984; Potts 1986; Rands 1986).

The effects of grazing on wildlife populations vary depending on the species, and the intensity of the grazing. This is most likely related to feeding and nesting differences in the species. Leininger and Schultz (1991) reported similar results between small mammals and grazing, with 28 individuals being observed on a grazed site vs. 41 individuals within an ungrazed site. Grazing can also reduce species diversity. Reynolds and Trost (1980) reported that diversity among small mammals was decreased on grazed sites in Idaho. Resting a grazed area has also shown that these areas can recover from disturbance. Songbird, raptor, and small mammal use and diversity increased 350% after grazing had been halted for 8 years from a site in Utah (Duff 1979).

Forestry practices, such as cutting method, logging system, and slash disposal/site preparation methods alter species composition, and alter plant populations and species diversity. Forestry practices generally affect fish and wildlife populations indirectly through alteration of habitat. No single forestry practice will affect all wildlife and their populations in the same manner. Some species are dependent on old growth forest conditions, some on early seral (successional) conditions, and still others somewhere in between. Forestry practices that result in a variety of habitats will likely lead to the greatest species diversity.

Plant populations can be directly affected by construction of recreation facilities, such as campgrounds, toilets, boat ramps and roads. Hiking trails, off-road vehicle use, and boat traffic can also reduce plant populations and species diversity by directly damaging or destroying plants, altering site conditions, or otherwise disrupting plant habitat.

Recreation impacts to wildlife are generally related to changes in habitat quantity or quality. Campgrounds, especially when constructed within riparian zones, often decrease wildlife habitat because of human disturbance, trampling, soil erosion and compaction, and loss of vegetation. These factors can act to reduce wildlife populations in situations where the site is a direct migra-



tion route, breeding or nesting area, or a site of other highly important habitat in short supply within the surrounding landscape.

The two most significant impacts associated with human habitation are the elimination of plant habitat, and the introduction of exotic species. Humans have intentionally and unintentionally introduced a number of non-native plant species to northern Idaho. The Coeur d'Alene Reservation supports 189 non-native plant species (Montana Department of Agriculture 1998), sixteen of which are legally considered noxious in the State. Because these plants have not evolved with other species in the area they do not have natural systems to keep them in check. As a result, many non-native plants overwhelm native plant communities, disrupt complex ecosystems, reduce biological diversity, jeopardize endangered plants and animals and degrade habitat. A list of non-native plants can be found in Appendix H.

Elimination or alteration of habitat, and introduction of exotic species (including dogs, cats, etc.) affect animal populations and species diversity. In agricultural areas, windbreaks and shelterbelts provide many birds, small mammals, reptiles, and amphibians with shelter and food sources (Yahner 1982).

There are approximately 208 miles of paved and 1,441 miles of gravel/dirt roads on the Coeur d'Alene Reservation (Coeur d'Alene Tribal GIS 2003). Road surfaces and adjacent ditches displace native plant species. Even after dirt roads are retired, soil compaction in the tire tracks continues to prohibit establishment of woody vegetation for as much as five years (Krueger 1998b). In addition to this loss of available habitat, automobiles are one of the primary ways that non-native plant seeds are dispersed. Non-native plants, such as reed canary grass, are abundant in roadside ditches on the Reservation.

Roads primarily affect animal populations indirectly through alteration of habitat. However, roads do lead to direct mortality of wildlife (automobile collisions), increased hunter access and success rates, and contribute to habitat fragmentation. Roads can cause an edge effect through forested areas creating habitats beneficial to some wildlife species. More species are usually found near edges, which provide habitat overlaps. However, roads tend to fragment habitat areas.

### 3.3.3 Coeur d'Alene Lake

*“Coyote tricked Rock into chasing him throughout the country and eventually into the Lake, ridding the land of the monster who had been crushing the lodges of the other Animal Peoples. And in so doing many of the near-by mountains and prairie were created, as well as the ‘blue’ of Coeur d'Alene Lake”*  
(Frey and the Schitsu'umsh 2000).

*The Creator owns the lake,  
but he put the Coeur d'Alene  
here to take care of it.  
(Henry SiJohn 1991).*

Coeur d'Alene River headwaters originate near the Idaho-Montana border and extend westward, draining approximately 2,360 square miles of the western slope of the Bitterroot Mountains. The North and South Forks come together near Enaville to form the main stem, a low gradient meandering river in a broad valley. In this valley,



12 lateral lakes and thousands of acres of wetlands and other floodplain habitats are hydraulically connected with the main stem. The main stem of the Coeur d'Alene River flows into Coeur d'Alene Lake near Harrison. The St. Joe and St. Maries Rivers also flow into the Lake. Coeur d'Alene Lake discharges through the Spokane River, which is a tributary of the Columbia River.

In 2001, the U.S. Supreme Court reaffirmed the Tribe's ownership of the southern third of Coeur d'Alene Lake and a portion of the St. Joe River. *Idaho v. United States and Coeur d'Alene Tribe*, 533 U.S. 262, 121 S.Ct. 2135, 150 L.Ed.2d 326 (June 18, 2001).

Over a 100-year period the mining industry in Idaho's Silver Valley dumped 72 million tons of mine waste into the Coeur d'Alene watershed. As mining and smelting operations grew, they produced billions of dollars in silver, lead and zinc. In the process, natural life in the Coeur d'Alene River was disappearing. The Tribal Council in 1991 worked to force restoration of the Coeur d'Alene watershed, and in 1996 the Coeur d'Alene Basin Restoration Project, the largest natural resource damage case in American history, began.

The Silver Valley is the nation's second largest Superfund site. The Tribe's natural resource damage assessment for the river, its tributaries, the lateral lakes and Coeur d'Alene Lake totals over 1 billion dollars. The Tribe, working with the U.S. Environmental Protection Agency, the U.S. Forest Service, the U.S. Fish and Wildlife Service, the Bureau of Land Management and the U.S. Geological Survey, has taken the leading role in cleanup efforts and the leading role toward responsible stewardship on the basin and Coeur d'Alene Lake, which is the heart of the Tribe's homeland and Reservation.

*We do what we do for the  
future of this lake and for the  
future of the region. We do it  
not just for the Coeur d'Alene  
Tribe, but for everybody.”  
(Henry SiJohn 1991).*

The Natural Resources Damage Assessment being undertaken by the Tribe and the United States is addressing mining- and/or milling-related resource impacts independent of this DPEIS.

### **Impacts of Post Falls Dam**

There have been enormous impacts to Coeur d'Alene Lake from the operation of the Post Falls Dam. Included below is the Executive Summary from the Tribe's Impacts Assessment report as part of the Federal Energy Regulatory Commission's relicensing process (Coeur d'Alene Tribe 2005).

“This Impact Assessment was prepared by the technical staff of the Coeur d'Alene Tribe as an effort to document, in a scientific framework, the effects on natural and cultural resources that nearly 100 years of Lake level regulation have produced. This Lake level regulation was initiated by the Washington Water Power Company (now Avista Corporation) in 1906 to capitalize on the abundant water resources within the Spokane River system to produce electricity for the growing ‘Inland Empire’ region (eastern Washington and Northern Idaho). But the development of the hydropower ‘resource’ has brought many changes to this system, perhaps the most profound of which occurred to Coeur d'Alene Lake, a natural Lake system which

had been supporting the Coeur d'Alene Indian people for untold generations. This report, then, is a comprehensive evaluation of the effects of the Spokane River Hydroelectric Project on the people and resources of Coeur d'Alene Lake.

### **Creation And Purpose of The Coeur d'Alene Tribal Reservation**

- \* The Reservation for the Coeur d'Alene Tribe was established by an 1873 Executive Order of President Ulysses Grant and confirmed by Congress in 1891. The current Reservation boundaries include approximately the southern one-third of Coeur d'Alene Lake and adjacent lands, and the lower reaches of the St. Joe River.
- \* As confirmed by the U.S. Supreme Court in 2001, the United States holds in trust for the Tribe the waters and submerged lands within those Reservation boundaries. Spokane River Project operations have profoundly impacted these Tribal trust resources as well as other related natural resources and ecosystems.

### **Effect of Post Falls Dam on Coeur d'Alene Lake and Spokane River Hydrology**

- \* In typical years prior to construction of Post Falls Dam in 1906, Lake surface elevation peaked in late spring in response to snowmelt runoff and declined to its minimum level (determined by the elevation of the Spokane River outlet channel) by late summer.
- \* Post Falls Dam is operated to generate electricity and to hold the Lake level at approximately 2128 feet throughout the summer. In late summer and autumn water is released, thus providing more flow in the Spokane River than would otherwise be available at that time. (This operational scheme greatly enhances the year-round capacity and reliability of the system of hydroelectric dams on the Spokane River.)
- \* Operation of Post Falls Dam artificially floods approximately 13,500 acres of low-relief lands adjacent to the Lake and lower reaches of the Coeur d'Alene and St. Joe Rivers with water up to 8 feet deep during the summer, a much longer period than would otherwise occur. Dam operation delays recession of the Lake to its minimum level by several months, which now typically occurs in late autumn.
- \* Of the approximately 13,500 acres directly inundated during the summer by Post Falls Dam, approximately 4,040 acres (30% of this area) are within the Coeur d'Alene Tribal Reservation.
- \* Evaporation from the increased surface area and transpiration from emergent aquatic plants growing in these shallow areas created by dam operation reduce total Lake outflow on an annual basis. This effect may be of ecological significance especially in years of very low streamflow.

### **Effects of Post Falls Dam Operation on Physical Features**

- \* Post Falls Dam operation profoundly alters the physical features and characteristics of Coeur d'Alene Lake and adjacent near-shore areas. These effects are most apparent in the

shallow, southern third of the Lake and lower reaches of the St. Joe River under Tribal ownership and jurisdiction.

- \* Holding the Lake at 2128 feet elevation during the summer creates large areas of shallow open water, allowing formation of larger wind-generated waves of greater energy acting over longer time periods that erode Lake shorelines, riverbanks and floodplains.
- \* Higher Lake levels during the summer create more opportunity for boating, and consequently more erosion at that level from boat wakes.
- \* Soils are saturated to a higher elevation for longer periods, profoundly altering near-shore and wetland plant communities and killing or preventing regeneration of cottonwood trees and other soil-stabilizing vegetation, thus allowing further erosion.
- \* Several miles of natural levees confining the meandering channel of the lower reaches of the St. Joe River and associated lateral lakes, floodplains, and wetlands have disappeared due to the continued alteration of the natural processes that develop and sustain them.
- \* Similar changes occur at the heads of bays and other shallow or low-relief areas adjacent to the Lake, as well as in other tributaries and the lower reaches of the Coeur d'Alene River where mobilization and transport of toxic metals-contaminated sediments from historic mining and ore-processing activities are of particular concern.
- \* Continued physical changes can be expected for the foreseeable future, as near-shore areas, riverbanks, levees, floodplains and associated ecosystems continue to adjust to the altered hydrologic conditions of higher summertime Lake levels and delayed recession imposed by operation of the Post Falls Dam.

### **Environmental Effects of Post Falls Dam Operation on Coeur d'Alene Tribal Lands, Waters And Natural Resources**

#### *General Environmental Effects and Concerns*

- \* Project operations have profoundly altered the distinct lateral lakes, diverse wetlands, floodplains, and fertile intermittently-flooded valley bottom lands of the lower St. Joe River and their associated ecosystems which once teemed with native cold-water fish, game, waterfowl, and edible and medicinal plants which sustained the Coeur d'Alene Tribe for millennia.
- \* For much of the year, these areas now are shallow, warm, open-water areas contiguous with the main body of Coeur d'Alene Lake or degraded wetlands or bare mud flats.

#### *Specific Water Quality Effects and Concerns*

- \* The additional 13,500 acres of shallow water areas created during the summer by Post Falls Dam operation warm sooner than deep-water areas, and significantly increase the overall volume of warm water in Coeur d'Alene Lake. Larger areas of the Lake now violate Tribal and State of Idaho regulatory criteria for temperature for longer periods throughout the year.

- \* These additional shallow areas are ideal habitat for emergent and submergent aquatic plants including non-native, invasive and nuisance species such as Eurasian water milfoil which Tribal researchers discovered growing in Tribal waters in 2004.
- \* Aquatic plant growth draws nitrogen, phosphorus and other nutrients from bottom sediments. When these plants die and decompose, dissolved oxygen in the water is consumed, and nutrients are released which contribute to further growth of plants and algae throughout the Lake. These effects are evident in the shallow southern portion of the Lake under Tribal ownership, where depletion of dissolved oxygen is frequently observed in late summer and early autumn.
- \* This process of eutrophication is of particular concern in Coeur d'Alene Lake because if Lake bottom waters become depleted in dissolved oxygen, geochemical reactions could promote the remobilization of toxic metals such as arsenic, cadmium, lead, and zinc from Lake bottom sediments contaminated by historic mining and ore-processing activities upstream in the South Fork Coeur d'Alene River mining district (which was largely powered by hydroelectricity from the Spokane River Project for much of the 20th century).
- \* One primary strategy under consideration for managing the metals-contaminated bottom of Coeur d'Alene Lake is to control nutrient inputs, thereby controlling the eutrophication process and its adverse effects of dissolved oxygen depletion and thus the mobilization of toxic metals from Lake bed sediments under anoxic conditions.
- \* The water quality effects of increased overall biological productivity in Coeur d'Alene Lake resulting from Post Falls Dam operation also have ramifications to ongoing, planned, or potential environmental remediation efforts throughout the Coeur d'Alene Lake/Spokane River Basin<sup>1</sup>, as well as to interstate nutrient load allocation and control efforts needed to manage and protect water quality downstream in the Spokane River and Lake Spokane.

#### *Specific Aquatic Resource Effects and Concerns*

- \* Project operations cause major changes to the flood pulse dynamics within the Project area by reversing the gradual recession of the natural hydrograph and inundating low-lying adjacent lands and tributaries to the Lake throughout the summer growing season. This effect creates habitat that sustains a thriving non-native fish community and an altered food web that negatively impacts west slope cutthroat trout, federally listed bull trout, mountain whitefish, and other native species. West slope cutthroat trout, bull trout and mountain whitefish are culturally significant resources of the Coeur d'Alene Tribe. Project operations have greatly reduced the ability of the Tribe to utilize those resources.
- \* Inundation and the resulting alteration of habitat preclude Tribal members from accessing

1. The Bunker Hill Superfund Site, upstream of Coeur d'Alene Lake, was added to the NPL in 1983. In February of 1998 EPA announced that it would study the full extent of pollution from mine waste in the entire 1,500 square mile Coeur d'Alene basin and Spokane River ecosystem. The CERCLA remedy and response timetable are ongoing." [This DPEIS does not address impacts from historic mining and/or milling.]

habitat areas that were set aside for the exclusive use and occupancy of the Tribe. That has precluded traditional subsistence fishing in much of the Project area and prevents Tribal members from harvesting the adfluvial life history forms of the native salmonids.

- \* Declining numbers of native trout in the Lake and inundated riverine habitats restrict native fish management to species conservation characterized by slot limits, restrictive seasons, and catch and release regulations.
- \* More than 100 miles of habitat in lower river segments are annually converted to lacustrine habitats from mid-June to late September. The net effect of this inundation is the reduction and elimination of thermal refuges that provide suitable habitat for native fish throughout the lower reaches of the tributaries to the Lake.
- \* The chronic, annual inundation of habitats produces approximately 13,500 acres of warm, productive rearing habitat for non-native fish species, including large predators that prey on native westslope cutthroat trout, mountain whitefish, northern pikeminnow, bull trout, and largescale sucker.
- \* Inundated riverine and Lake habitats alter thermal dynamics, nutrient cycling, plankton and invertebrate assemblages. This annual inundation by the Project creates habitats that support a food web consisting primarily of non-native species that compete with all life stages of native fish species for zooplankton and benthic invertebrates.
- \* Alteration of riverine and lacustrine habitats through inundation has a suite of behavioral effects on native species that result in truncation of reproductive, trophic and refuge migrations and avoidance of less suitable habitats created by Project operations. In combination with food web effects, this has the overall effect of decreasing production of native species throughout the Project area.

#### *Specific Terrestrial Resource Effects and Concerns*

- \* The quantity, timing and duration of inundation are greatly altered by Project operations. Operations affect the extent, distribution and function of approximately 18,100 acres of wetlands upstream of Post Falls Dam.
- \* The change from the natural hydrographic variation alters the dynamics of the system, and produces new conditions that are not all favorable to the native biota. Some plant and animal species that rely on the natural variation are displaced by species that are more tolerant of existing conditions.
- \* Populations of raptors, waterfowl, cavity nesting species, reptiles and amphibians, furbearers, big game and their associated life prerequisites are impacted by Project operations.
- \* Seasonal inundation causes a loss of diversity in wetland habitats in the Lake and tributaries. Emergent, scrub-shrub and forested wetlands are being replaced by aquatic bed wetlands and shallow open water.
- \* Project operations encourage the spread of aquatic weeds. Available habitat for weeds is increased, and the spread of weeds is exacerbated by recreational boating.

- \* Proper function of the natural levees that exist in the Project Area is disrupted by Project operations. These levees are no longer self-sustaining and continue to be lost to erosion.

### *Specific Cultural Resource Effects and Concerns*

Impacts to cultural resources cannot be fully assessed at this time. Archaeological and Traditional Cultural Property (TCP) studies are not complete and reports are not yet available.

### *Inundation*

- \* Archaeological resources are obscured by inundation of lowlands in Project area. This includes portions of known village sites recorded by early anthropologists and missionaries.
- \* Archaeological survey of the Project area below 2128 feet of elevation is prevented during summer due to inundation by Project operations.
- \* Sediments are being deposited over archaeological resources by inundation of lower reaches of some waterways.
- \* Traditionally important plants such as water potato, camas, tule, and cottonwood are now absent or available in dramatically lower quantities in the Project area due to inundation of growing areas and change in seasonal levels of the Lake and lower reaches of the rivers caused by Project operations.
- \* Only five of the 16 identified culturally significant plant species are currently found within the boundaries of the Reservation, and only eight are found along the Lake and its tributaries. Many of the species appear to have very limited distributions throughout the Project area, and are particularly limited within the Reservation.
- \* Traditional fish trap sites are now located on slack water due to Project operations rendering them unproductive.
- \* Camps on the St. Joe River levees were used up until the 1940s when change in Project operations raised the level of inundation to 2128 feet elevation. This change inundates surrounding lowlands so that foot access to the levees across the lowlands is no longer possible and many of the area's resources are no longer present.

### *Erosion*

- \* Due to Project operations, the St. Joe River's natural levees erode faster than they build. The levees have a high density of archaeological and other cultural resources.
- \* Archaeological site identification in the Project area is primarily by locating artifacts eroding out of the cutbank onto mudflats during the drawdown. This means cultural artifacts, sites and features are eroding away due to Project operations and the boat wake and wave action facilitated by the high summer water level.
- \* Archaeological site looters, "artifact collectors," are aware of the erosion pattern and routinely scour specific locations in periods of low water. On-going Project operations facilitate this archaeological site looting by regularly scheduled and located artifact deposition.



### *Development*

- \* Development around the Lake and on riverbanks is structured for and dependent on the Project's maintenance of high summer Lake levels. Development buries, displaces and removes artifacts."

### **3.3.4 Fire**

Fire was an integral part of the ecology of the forests of the Inland Northwest prior to European settlement. Based on information in the Tribe's Environmental Action Plan Assessment (EAP) report (Coeur d'Alene Tribe 2000), fire was used by the Coeur d'Alene people as a means to renew and control growth of unwanted plants in huckleberry and root gathering areas and to keep camp-site areas clear of growth. Fire was also used to promote growth of grass in the prairie areas. In pre-settlement days, frequent fires burned the open timber and meadows now occupied by agriculture. These fires maintained the grazing forage for wildlife and native plants for human use as well.

Wildfires have occurred in recent years across the Reservation but have been small in size and non-lethal, except for the fire of 1910, which burned thousands of acres on the Reservation. The most recent wildfire occurred in 1968 near the town of Plummer, in which approximately 2000 acres burned.

Fire alters the physical makeup of a forest and grasslands by removing organic material, altering the species composition of trees and understory vegetation, and changing temperature regimes as a result of the physical alteration of the density of the tree and understory canopies. Chemical regimes are also changed by fire. Fire usually increases the availability of minerals such as calcium and magnesium. Fire also temporarily reduces total nitrogen on a site, but at the same time increases the available nitrogen in the soil (Agee 1993).

Frequent, low intensity surface fires at intervals between 2 and 25 years favored ponderosa pine as the dominant species, and open stand conditions for most of the western lowland forests. Fire regimes for the forests of the white pine/cedar/hemlock types were typically high intensity, stand replacement fires. These fires also occurred at longer intervals of perhaps 50 to 500 years (Agee 1993). These fires did not burn with equal intensity across the entire landscape, but instead left patchworks or mosaics of stands with varying species compositions, age classes, sizes, and understory vegetation. These fires, combined with some intermittent ground fires, favored shade intolerant species such as western white pine, western larch, ponderosa pine, and lodgepole pine. It could have favored Douglas-fir on some habitat types, such as those in the grand fir and subalpine fir series. The pre-settlement forest conditions described above are consistent with those associated with the fire regimes known to have occurred in northern Idaho.

Frequent, low intensity fires also tend to favor development of larger size classes and older trees. Smaller trees become established when enough overstory dies to create an opening and fire does not occur for a longer period. This results in a multi-aged stand structure. Longer fire frequencies favor in-growth of shade-tolerant species and brush. Because of their higher burn intensity, they also result in much larger patches of relatively even-aged trees of various size classes across the landscape.



Frequent, low intensity fires burning over large acreages of the western lowland forests no longer occur. Except for those parcels converted to agricultural lands, the lack of fire affects nearly all of the remaining forestland of this type. These changes have contributed to the changes in species composition and density in the past 100 years.

The frequency of wildfires in the western lowland (primarily ponderosa pine) forests has been dramatically reduced since the establishment of the Reservation. As a result, the density of woody shrubs has increased, the amount of herbaceous ground cover has decreased and the total amount of woody fuels has increased. This has changed species composition to more shade-tolerant species and increased stand density in these areas, leading to greater risk of catastrophic fire, insect infestations and diseases.

Covering 193,465 acres of the Reservation, forested land is the most extensive ecosystem type on the Reservation (Cd'A Tribal GIS 1998). The western lowlands and foothills were predominantly open ponderosa pine and Douglas-fir, with fingers of mixed grand fir, Douglas-fir, western larch, white pine and lodgepole pine in stream bottoms and protected slopes. Habitat types are primarily in the Douglas-fir and grand fir series with some intrusions of western red cedar and western hemlock (Daubenmire and Daubenmire 1968; Cooper, *et al.* 1991). These ecosystems are fire maintained ecosystems. Fire suppression and prescribed fire are a part of the Tribal Forest Management Plan and are implemented for ecosystem restoration.

The eastern mountains of the Reservation have a much moister environment and were covered with stands of mixed conifers including white pine, western larch, Douglas-fir, grand fir, western red cedar, and western hemlock. Scattered pockets and individual ponderosa pine trees were probably present on south and west slopes.

The highest elevation also includes subalpine fir, Engelmann spruce, and mountain hemlock. Habitat types are predominantly in the western hemlock, western red cedar, and subalpine fir series with a few mountain hemlock types at the highest elevations in the northeast corner of the Reservation. Fire is still an important element for restoration and nitrogen fixing.

A considerable amount of land within the Reservation has been converted from either forest or grassland to agricultural land since the turn of the century. Agricultural land is a human dominated or created ecosystem type and, unlike the others, was not present prior to settlement. In 1998 it was estimated that 135,828 acres of land within the Reservation were used for agriculture (Cd'A Tribal GIS 1998). This includes all of the potential native grasslands that existed in the western portion of the Reservation. Blue grass, wheat and legumes are the three main crops produced on the Reservation. Some of this area is burned yearly. Fire is important in these agricultural settings for control of non-native species and nitrogen and chemical enhancement of the soils.

### **3.3.5 Fish**

*“Going up the Columbia River, it was Coyote who released the Salmon and other Fish Peoples trapped by the Swallow Sisters at Celilo Falls. The camas and fish would help nourish and the pitch help warm those who would be coming”*  
(Frey and the Schitsu'umsh 2000).

The desired future conditions for fisheries in the Tribe's aboriginal territory is to provide for sustainable, naturally producing populations of native fish that support Tribal and non-Tribal harvests and also provide for ecological, cultural, economic, recreational, and aesthetic benefits to the region.

The following describes the current status of fisheries populations and species diversity on the Reservation. This information was summarized from numerous studies conducted on the Reservation, including the Supplementation Feasibility Report (Peters, *et al.* 1998), fish habitat and population evaluations of Coeur d'Alene tributaries (Lillengreen, *et al.* 1993, 1994, and 1996), Lake and Plummer Creek Watershed Assessments and Monitoring Reports (Coeur d'Alene Tribe 1998b; Krueger 1998c), the Coeur d'Alene Subbasin Summary (NWPPC 2001) and several Hangman Creek assessments (Idaho Department of Health and Welfare 1989–1990 and 1991; Spokane County Conservation District and Washington Department of Ecology 1994).

Fourteen native fish species and fourteen introduced exotic fish species (Simpson and Wallace 1982) are currently found within the Tribe's aboriginal territory (Table 3.3.5.1)

Widespread changes in land-use patterns have caused the decline of many of the more sensitive native species. Of the species native to the Reservation, two are now locally extirpated from their native habitats, one is listed as threatened, one is listed as a species of special concern, and the status of another is uncertain. Habitat degradation and the construction of hydroelectric dams on the Columbia River System caused the loss of the Chinook and steelhead sub-populations in Hangman Creek. (Chinook have subsequently been stocked in Coeur d'Alene Lake by the Idaho Department of Fish and Game and are managed as an introduced game fish.). Bull trout have been listed as a threatened species in the Coeur d'Alene system under the Endangered Species Act. Recent surveys suggest that bull trout have become essentially extirpated from the Coeur d'Alene River system and from other low elevation tributaries to the Lake. Comparison of historic and current distribution data for the St. Joe River system suggest bull trout may have been more widespread in the past. Within their native range, populations of westslope cutthroat trout have been declining region-wide and they are a species of special concern to the Tribe and the State of Idaho. The U.S. Fish and Wildlife Service has considered the westslope cutthroat trout for listing under the Endangered Species Act as recently as 1999. The status of native redband trout (thought to be a subpopulation of rainbow trout) in the Hangman watershed has not been fully determined, but distribution is thought to be greatly reduced compared with their historic range (Coeur d'Alene Tribe unpublished data).

Mountain whitefish are one of the most abundant and widely distributed native game fish in the Coeur d'Alene subbasin. Strong populations are found in riverine habitats of the Coeur d'Alene, St. Joe, and St. Maries rivers. Recent surveys indicated that mountain whitefish were the dominant game fish captured in electrofishing samples from the Coeur d'Alene, St. Joe, and St. Maries rivers (Apperson *et al.* 1987). Although mountain whitefish were found primarily in mainstem reaches of large rivers, their presence was also noted in several smaller tributaries to the St. Joe and St. Maries rivers.

Historically, westslope cutthroat trout were the dominant salmonid in streams of the Coeur

**Table 3.3.5.1. Fish Species of the Coeur d'Alene Subbasin.**

<i>Common Name</i>	<i>Scientific Name</i>	<i>Location*</i>	<i>Native**</i>
Bull trout	<i>Salvelinus confluentus</i>	B	Yes
Westslope cutthroat trout	<i>Oncorhynchus clarki lewisi</i>	B	Yes
Chinook salmon**	<i>Oncorhynchus tshawytscha</i>	B	Yes
Redband trout**	<i>Oncorhynchus mykiss gairdneri</i>	Ri	Yes
Kokanee	<i>Oncorhynchus nerka</i>	L	No
Brook trout	<i>Salvelinus fontinalis</i>	Ri	No
Mountain whitefish	<i>Prosopium williamsoni</i>	B	Yes
Lake superior whitefish***	<i>Coregonis clupeaformis</i>	L	No
Northern pike	<i>Esox lucius</i>	B	No
Tiger muskie	<i>Esox masquinongy x E. lucius</i>	B	No
Northern pikeminnow	<i>Ptychocheilus oregonensis</i>	B	Yes
Redside shiner	<i>Richardsonius balteatus</i>	Ri	Yes
Speckled dace	<i>Rhinichthys osculus</i>	Ri	Yes
Longnose dace	<i>Rhinichthys cataractae</i>	Ri	Yes
Tench	<i>Tinca tinca</i>	L	No
Longnose sucker	<i>Catostomus catostomus</i>	B	Yes
Largescale sucker	<i>Catostomus macrocheilus</i>	L	Yes
Bridgelip sucker	<i>Catostomus columbianus</i>	L	Yes
Channel catfish	<i>Ictalurus punctata</i>	B	No
Brown bullhead	<i>Ictalurus nebulosus</i>	L	No
Black bullhead	<i>Ictalurus melas</i>	L	No
Largemouth bass	<i>Micropterus salmoides</i>	L	No
Smallmouth bass	<i>Micropterus dolomieu</i>	L	No
Black crappie	<i>Pomoxis nigromaculatus</i>	L	No
Pumpkinseed	<i>Lepomis gibbosus</i>	L	No
Yellow perch	<i>Perca flavescens</i>	L	No
Torrent sculpin	<i>Cottus rhotheus</i>	Ri	Yes
Shorthead sculpin	<i>Cottus confusus</i>	Ri	Yes

\* L -Lake, Ri - River, B - Both

\*\* Chinook Salmon and Redband Trout were historically present in Hangman Creek and its tributaries only.

\*\*\* Field observation by Ronald Peters, Coeur d'Alene Tribe Fisheries Manager.

d'Alene basin (Behnke and Wallace 1986). There is little data documenting historic abundance of westslope cutthroat trout, but densities were probably high throughout the basin. There are three distinct life history types of native trout in the Basin: resident, fluvial, and adfluvial. The resident trout spend their entire life cycle within the smaller tributaries. The fluvial stock originates in the smaller tributaries and then migrates to the larger streams like the St. Maries, St. Joe, and Coeur d'Alene Rivers. Once they reach sexual maturity (4-6 years), they return to the tributaries to spawn. The adfluvial stock spends one to three years in the tributaries and then migrates to the open wa-

ters of the lake to feed and mature. Upon reaching maturity, they return to the tributaries to spawn. All of these life history forms of westslope cutthroat and bull trout have experienced substantial declines in their distribution and abundance within the Coeur d'Alene system (Table 3.3.5.2.)

**Table 3.3.5.2. Historical and Current Range for westslope cutthroat trout**

<i>Historical range occupied (%)</i>	<i>Occupied range classified as strong (%)</i>	<i>Assessment Area</i>	<i>Source</i>
65	0	CDA Reservation	Coeur d'Alene Tribe
82	11	Idaho	Reiman/Apperson (1989)
85	25	Interior Columbia Basin	ICBEMP (USFS/BLM)

Studies conducted by the Coeur d'Alene Tribe have documented viable populations of westslope cutthroat in Lake, Alder, Evans, and Benewah Creeks. However, they also reported the presence of non-native brook trout in Benewah and Alder Creeks. Brook trout may compete with the cutthroat for food and limited space in these drainages. The following summarizes the fish population data for those Reservation streams, which were inventoried from 1992 to 2001.

**Lake Creek** Lake Creek discharges into Coeur d'Alene Lake at Windy Bay and has been studied intensively by the Tribe and others (Lillengreen, *et al.* 1993, 1994, 1996; Peters *et al.* 1998; USDA Soil Conservation Service 1991). Studies have documented the abundance and distribution of fishes in the watershed, the migratory life histories of cutthroat trout, characteristics of macroinvertebrate populations, and described general habitat features.

The mean annual density of cutthroat trout has ranged from 3.5-8.3 fish/100 square meters. The population estimates calculated from annual sample efforts reveal the consistent higher density of westslope cutthroat trout in tributary reaches compared to mainstem reaches. This is thought to be primarily a function of high water temperatures in these mainstem reaches. Cutthroat densities were greatest in plunge pool habitat and lowest in dammed pool and glide habitats (Lillengreen *et al.* 1996). The growth rates and condition factors for cutthroat trout were comparable to other streams in north Idaho (Lillengreen, *et al.* 1993). Electrofishing samples from the spring, summer, and fall displayed the following species composition and relative abundance in Table 3.3.5.3 (Lillengreen *et al.* 1996).

**Table 3.3.5.3 Species Abundance in Lake Creek**

<i>Species</i>	<i>Spring (%)</i>	<i>Summer (%)</i>	<i>Fall (%)</i>
Cutthroat Trout	15.1	32.7	6.9
Sculpin spp.	60.4	18.2	35.3
Longnose Sucker	20.8	25.4	25
Redside Shiner	3.8	16.4	32.8
Western Speckled Dace	—	7.3	—

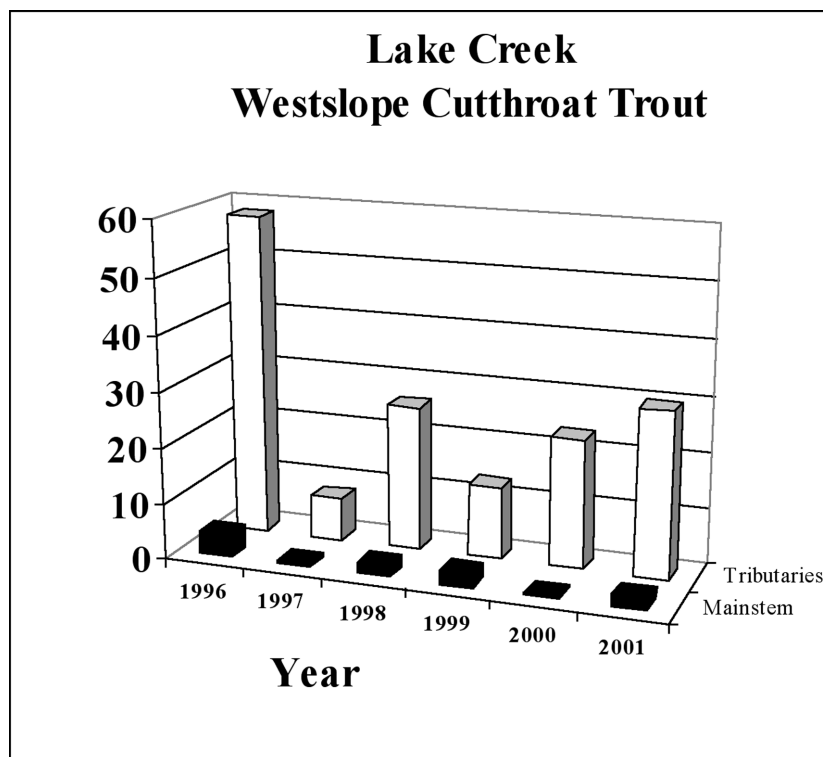


Table 3.3.5.4 Mean Westslope cutthroat trout density in Lake Creek and its tributaries

Incidental observations of adult and sub-adult bull trout have been made in the watershed in recent years but no spawning has been documented and bull trout usage of the watershed is probably limited.

Migration patterns of trout have been studied in Lake Creek since 1994. Migration trap data indicated that Lake Creek supports remnant populations of adfluvial (migratory) and resident westslope cutthroat trout. The exact size of adfluvial runs is difficult to estimate because of inefficiencies in trapping fish. However, 1994 represents a typical year; of a total catch of 698 fish, 99% were cutthroat trout. It was believed that most of these fish were of adfluvial stock (*i.e.*, spawn in streams, migrate to the lake to rear and mature). The upstream migration of cutthroat trout in the Lake Creek drainage was concentrated within the period from March 20 to April 23 and downstream migration typically occurs throughout this period and into early June. Analysis of the age class structure showed that age 2+ and 3+ fish were the most abundant age classes (Lillengreen, *et al.* 1996). Adult fish (Age 4+) have comprised 11% of the total run size on average.

The observed densities of macroinvertebrate in the watershed were generally comparable or greater than those observed in other similar streams in north Idaho, but were substantially lower compared to other streams studied on the Reservation (Lillengreen *et al.* 1996). Invertebrate diversity (as measured by the Shannon-Weiner Index) was also lower in Lake Creek.

Lillengreen, *et al.* (1996) concluded that the cutthroat trout population in Lake Creek includes

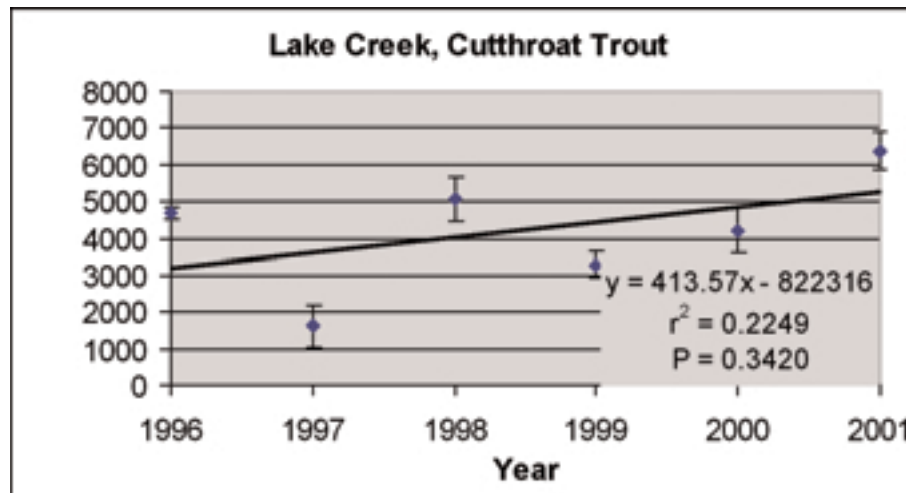


Table 3.3.5.5 Lake Creek Cutthroat Populations

Total estimated number of cutthroat trout (N) in the Lake Creek watershed, 1999–2001. Error bars indicate 95% confidence intervals for annual population estimates.

both the resident and adfluvial life history types. They further concluded that cumulative impacts from land uses to the hydrology and habitat of the system were limiting the production of the cutthroat trout. The investigators postulated that habitat limiting factors included: high summer water temperatures in mainstem reaches; and cumulative silt loading over time that had resulted in poor pool frequency and loss of overwintering and rearing habitats. They estimated through modeling that cutthroat trout spawning emergence survival would be 66% based on the levels of fine sediment in spawning gravels.

During recent years, 1996-2001, total estimated numbers of cutthroat in the watershed have shown an increasing trend although this trend is not statistically significant. This trend is thought to be a positive response to fishing regulations that closed the cutthroat trout fishery beginning in 1993. Restoration and enhancement efforts that have been underway since 1996 have the potential to improve local habitat and water quality conditions, but it may take another generation (7–8 years) to provide measurable benefits to fish populations.

**Plummer Creek** Plummer Creek flows into Chatcolet Lake, and has been heavily impacted by land and other resource uses. Major factors limiting trout production in the stream are: lack of quality spawning, rearing, and overwintering habitats. The system is degraded with low base flows, high water temperatures, high silt loads, and passage (barrier) problems.

In 1991, electrofishing surveys indicated the fish community was dominated by dace (81.3%). Of the 833 fish captured, only 4 (0.5%) were cutthroat and 5 (0.6%) were eastern brook trout. The remaining 147 fish consisted of sculpin, redbreast shiners, longnose suckers and northern pikeminnow. Anecdotal reports claim harvest of large adult cutthroat trout in both Plummer and Little Plummer Creek as recently as the late 1970's (Matt 1998). Tribal biologists concluded that



Plummer Creek receives little utilization by salmonids as a consequence of the poor habitat conditions. They stated that appreciable improvements in upland erosion, riparian vegetation, and water quality would need to take place before salmonid utilization can be expected (Krueger 1998c).

**Benewah Creek** Benewah Creek is a fourth order stream that drains into Benewah Lake. It has been studied by Lillengreen *et al.* (1996) who reported that the major limiting factors for salmonids were: lack of riparian vegetation, low base flows, unstable stream banks, high water temperatures, and high siltation rates. These impacts further translated to channel instability, low pool quality, low habitat diversity, and reduced channel capacity.

Fish population surveys (Lillengreen, *et al.* 1996) conducted in 1993 and 1994 revealed that the fish community consisted of (Table 3.3.5.6):

**Table 3.3.5.6 Benewah Creek Fish Populations**

<i>Species</i>	<i>1993 (%)</i>	<i>1994 (%)</i>
Cutthroat Trout	11	2.8
Eastern Brook Trout	0.1	—
Rainbow Trout	0.3	—
Sculpin species	7	11.2
Largemouth Bass	0.3	—
Longnose Sucker	18.3	13.7
Longnose Dace	10.4	—
Speckled Dace	5.1	1.8
Brown Bullhead	0.3	—
Redside Shiner	45.9	72.2
Northern Pikeminnow	1.1	0.2

The cutthroat trout stock includes adfluvial as well as resident life history types.

Sampling of macroinvertebrates in Benewah Creek showed that diversity was the highest among the tributaries studied on the Reservation, and densities were comparable to similar streams in north Idaho.

The mean annual densities of cutthroat and brook trout have ranged from 2.5-3.5 fish/100 square meters and 0.2-0.8 fish/100 square meters, respectively. The population estimates calculated from annual sample efforts reveal the consistent higher density of westslope cutthroat trout in tributary reaches compared to mainstem reaches (Table 3.3.5.7). This is thought to be primarily a function of high water temperatures in these mainstem reaches.

During recent years, 1996-2001, the total estimated number of cutthroat in the watershed has remained stable, while the total number of brook trout has increased slightly. This trend is thought to be reflective of the relatively wider range of temperature preferences for brook trout and a slight



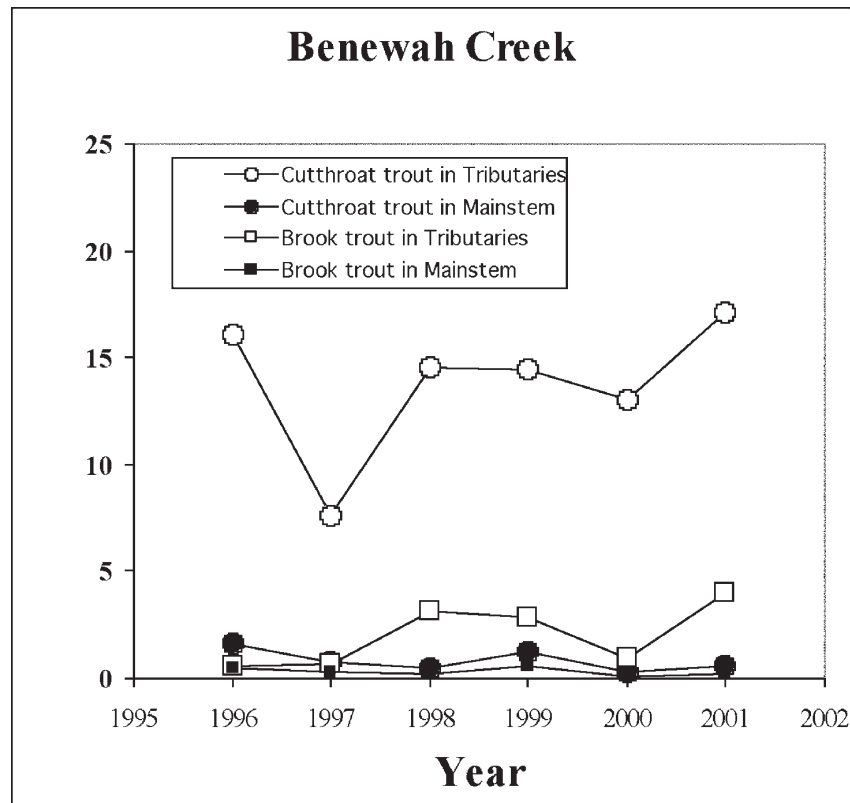


Table 3.3.5.7 Comparison of Eastern brook trout and westslope cutthroat trout densities in Benewah Creek

competitive advantage over cutthroat trout based on the timing of spawning. Restoration and enhancement efforts that have been underway since 1995 have the potential to improve local habitat and water quality conditions, but it may take another generation (7–8 years) to provide measurable benefits to fish populations.

**Alder Creek** Alder Creek is a fourth order tributary to the St. Maries River. The St. Maries River is a principal tributary of the St. Joe River which discharges into Coeur d’Alene Lake. Again, Alder Creek has been studied extensively by Tribal scientists (Lillengreen, *et al.* 1996; and Peters, *et al.* 1998). Alder Creek has been subjected to land uses and adverse effects similar to the other study watersheds. Cumulative impacts have taken their toll. Consequently, the stream displays similar habitat conditions of: low pool frequency and quality; low canopy cover; low levels of large woody debris; sub-optimal habitat type diversity; and high substrate sediment.

Fish population studies revealed that the composition of cutthroat trout in the catch did not vary substantially during the spring, summer, and fall sampling periods, at 24.2%, 20.8%, and 25.4% respectively. Non-native brook trout were present in higher numbers and composition, at 42.4%, 48.8%, and 34.7% respectively. Sculpins and longnose suckers made up the remainder of the community.

The brook trout population is significantly larger than the cutthroat trout population in Alder Creek and there is a significant trend of increasing brook trout abundance and decreasing cutthroat abundance in recent years. The pattern of distribution in Alder Creek indicates that cutthroat trout are not utilizing the optimal habitat found in tributaries, yet brook trout are found in these same habitats at densities that typically exceed 15 fish/100 square meters (Table 3.3.5.8).

Macroinvertebrate densities and indices of diversity were generally comparable to the other target tributaries (Lillingreen, *et al.* 1996).

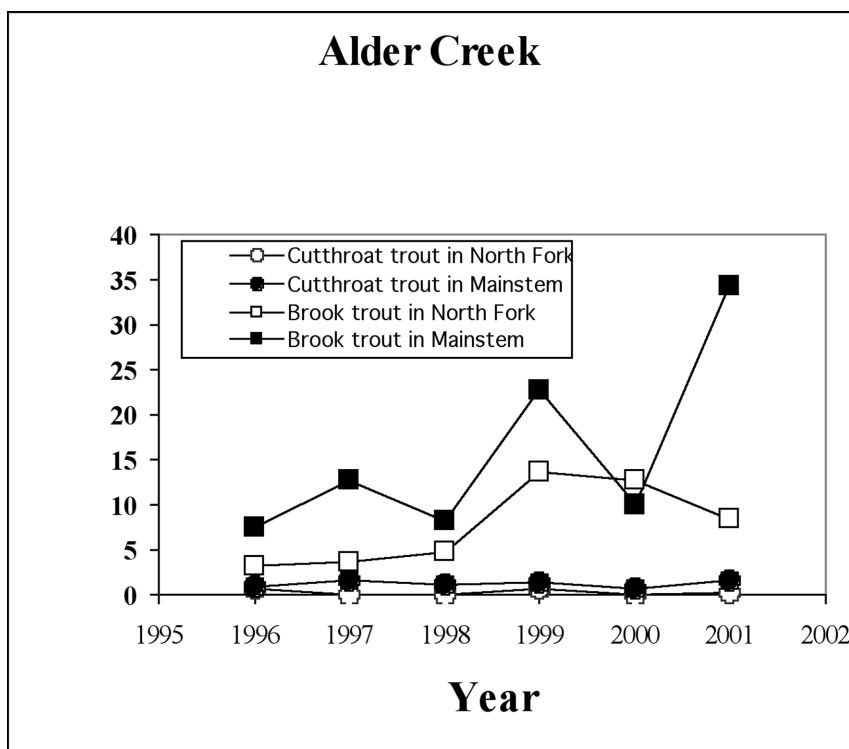


Table 3.3.5.8 Comparison of Eastern brook trout and westslope cutthroat trout density in Alder Creek.

**Evans Creek** Evans Creek deserves special reference. Among the target tributaries studied by the Tribe, Evans Creek displayed the highest overall densities of cutthroat trout (Lillingreen, *et al.* 1996). Density estimates reported by Lillengreen *et al.* (1993) ranged from 9.0 to 24.1 fish/100 square meters. A mean density of 8.2 fish/100 square meters is considered comparable to other Idaho streams in optimum condition (Lillengreen *et al.* 1996). There has been a general trend of increasing numbers of cutthroat in the watershed since 1996 (Table 3.3.5.9). The cutthroat trout in the watershed are believed to be primarily a resident fish stock.

With the exception of the lower reach, Evans Creek has not been subjected to the severe cumulative land use impacts that the other tributaries have. Livestock grazing in the lower reach has

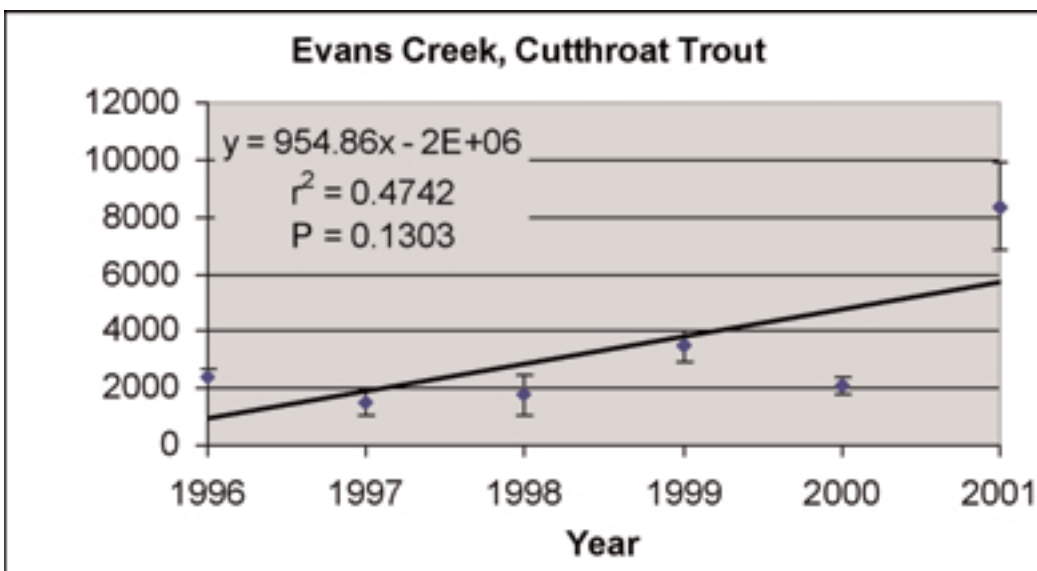


Table 3.3.5.9 Total estimated cutthroat trout numbers in the Evans Creek watershed, 1999–2001. Error bars indicate 95% confidence intervals for annual population estimates.

degraded spawning and rearing habitats in Evans Creek.

**Coeur d’Alene Lake** Peters, *et al.* (1998) have recently studied the lake and some of its key tributaries for cutthroat trout suitability. They sampled the fish populations and investigated a number of habitat and water quality parameters. Their estimates of relative abundance derived from electrofishing in the lake showed that 61.9% of the catch consisted of introduced species, with yellow perch and largemouth bass being the most abundant. Native fish comprised only 38.1% of the catch with largescale suckers being the most abundant. Cutthroat trout made-up only 0.83% of the catch from 1994-97 (Peters, *et al.* 1998). Gillnet sampling essentially corroborated the results obtained via electrofishing. The data show that nine species of fish were more abundant than cutthroat trout lake-wide.

Peters, *et al.* (1998) concluded that, on the basis of their data and habitat modeling, the upper 10 meters of the water column in the lake is generally not suitable habitat for cutthroat trout during the warmest part of the year. They attribute this to sub-optimal (high) water temperatures in this zone. Results from their water quality modeling indicate that there is suitable habitat for cutthroat in the lake, however, the quantity of the suitable habitat decreases as water temperatures increase during the year. While this condition does not directly exclude the cutthroat trout from the shallow areas (littoral zones), unsuitable habitat may exert additional stress when cutthroat make foraging runs in this zone (Peters, *et al.* 1998). The investigators concluded that water quality is still having a detrimental effect on habitat suitability for cutthroat trout despite recent improvements in the lake.

Introduced non-native fishes pose a major threat to native species in Coeur d’Alene Lake. Several recent studies of predator diets substantiate these claims (Rich 1992; CDA Tribe 2003). North-

ern pike are clearly substantial predators of cutthroat trout in Coeur d'Alene Lake. Pike are consuming a wide range of sizes of cutthroat, implying that they probably eat cutthroat throughout the year rather than just young fish shortly after they first enter the lake habitat. The presence of cutthroat trout as a major prey item in these ambush predators is an indication that cutthroat tend to be present in moderately shallow shoreline areas of Coeur d'Alene Lake. Only a single pike was collected from the pelagic zone in the Tribe's study. Chinook salmon are also a substantial predator of cutthroat trout. However, the available data indicate they prey only on those smaller cutthroats that have recently entered the lake habitat. The data from these studies provide a clear indication the largemouth bass, smallmouth bass, and northern pikeminnow are not substantial predators of cutthroat trout in Coeur d'Alene Lake. The sample sizes examined for these species are sufficiently large to support a firm conclusion.

Peters, *et al.* (1998) felt that cutthroat trout experience the highest rates of predation in the littoral zone habitat where densities of northern pike and other introduced species is highest. It is in the littoral zones that problems with temperature and inter-specific interactions are maximized. There is some relief from temperature stress in the open water, deeper areas (limnetic) of the lake, but not from the presence of other species that may compete with or prey on the cutthroat.

**Hangman Creek** According to historical accounts, Hangman Creek "was a clear stream, frequented by anadromous salmon (Marion 1952)." Chinook salmon and Steelhead were native to the Hangman Creek system, including the Reservation portion, but have been locally extirpated. Bull trout may have also used habitats of Hangman Creek; there is some mention of bull trout in the headwater areas; however, no known collections have been made to date (Spokane County Conservation District and Washington Department of Ecology 1994).

Hangman Creek is a fourth order stream of the Spokane River drainage and sustained anadromous fish prior to the construction of dams on the Columbia River system. This watershed has suffered severe cumulative impacts from land management practices, primarily agriculture and forestry. Fish biologists who have studied the watershed concluded that the system currently has little potential for sustaining salmonid fishes and other cold water biota. Low base flows and high water temperatures critically restrict cold water fauna and their designated beneficial uses. Some potential does exist in the upper reaches (headwaters) of the system. Data from 1994 shows the fish community to be dominated by bullhead, redband shiners, and dace. Other species found in the watershed are: tench; sculpins (spp.); suckers (spp.); yellow perch; chiselmouth; northern pikeminnow; brown, brook, and rainbow trout (Spokane County Conservation District and Washington Department of Ecology 1994). Brown and brook trout are exotic species which are aggressive competitors with, and predators of, native trout species.

As part of a three-year bioassessment on Hangman Creek, results in 2003 reveal that rainbow trout reside in the upper reaches and tributaries of Hangman Creek. Very little is known about the migratory habits of these fish or their genetic origin. Rainbows in Indian Creek exhibit many of the phenotypic (physical) characteristics of Redband trout (*Oncorhynchus mykiss gairdneri*), the native subspecies of rainbow. A healthy population of cutthroat trout (*Oncorhynchus clarki lewisi*)



Ech'ts'utm—"Log lying across path" Monument Peak

also resides in the forested areas of Nehchen Creek. Residents planted these fish from Benewah Creek stocks during the 1980's. More information on the genetic origin and migration patterns will become available after DNA analysis reports and migrant trapping data become available. Specked Dace (*Rhinichthys osculus*) and Redside shiners (*Richardsonius balteatus*) dominated stream reaches within agricultural areas. Other fish sampled include Longnose suckers (*Catostomas catostomas*) and sculpin (*Cottus* spp.).

### **3.3.6 Forest**

As stated earlier in the Fire section 3.3.4, nearly all of the Coeur d'Alene Reservation was originally forested. Approximately 114,411 acres of forest, shrub and grasslands were converted to agriculture and other non-forest uses and no longer support their native forest, shrub and grassland vegetation. Most of the remaining forest land on the Reservation has been impacted by forestry practices, exclusion of fire, and introduction of exotic species. Nearly all of the remaining western lowland forest has been logged at least once, and in some instances three and four times since establishment of the Reservation.



Blister rust, larch casebearer, introduced noxious weeds, and other introduced plants are present and permanently established at varying frequencies throughout all of the forests within and near the Reservation. White pine blister rust has impacted all areas supporting this species, including the 1,647 acres of the Grassy Mountain Reserve.

Blister rust has eliminated nearly all of the naturally regenerated white pine from the forests of the Reservation, and surrounding areas. Some isolated individual trees either escaped infection or are genetically resistant to the disease. The main result of the loss of white pine was the change of species composition to a predominance of Douglas-fir and grand fir where white pine was a major stand component. Blister rust has also indirectly contributed to the widespread occurrence of active root diseases in Douglas-fir and grand fir. This is due to the reduction of root disease-resistant white pine and, hence, allowing substantial increases in these two susceptible species.

Currently, the impacts of the larch casebearer are small. The introduced parasitic wasp is keeping the casebearer populations in check, but defoliation of western larch by the casebearer continues.

Grazing impacts on areas still forested are extremely variable and dependent on the number of animals, type of animals, and season of use.

The severity of effects on the forest environment by introduced plant species is not fully known. The presence of the non-native species in the forest, however, indicates that native vegetation has been displaced to one degree or another. In some areas all of the native vegetation has been replaced by meadow hawkweed (St. Amand 1998). The same is true for spotted knapweed on dry ponderosa pine sites. Abundance of some native forest plant species, and the wildlife associated with them, may be permanently reduced by the presence of these and other non-native plants.

The Coeur d'Alene Forest Management Plan 2003-2017, the Forest Management Plan Environmental Assessment, the Inventory Analysis of the 1997-98 Continuous Forest Inventory and the Coeur d'Alene Forest History are available at the Coeur d'Alene Tribe's Forestry Program for additional information about the forest (Table 3.3.6.1).

### 3.3.7 Minerals

**Table 3.3.6.1 Forested Habitat Types Identified on the Coeur d'Alene Reservation (Cooper, *et al.* 1991).**

Grand Fir/ninebark	Western Hemlock/queencup beadlily
Grand Fir/beargrass	Western Hemlock/wild ginger
Grand Fir/queencup beadlily	Western Hemlock/menziesia
Western red cedar/lady-fern	Grand Fir/twinflower
Western red cedar/ wild ginger	Subalpine fir/queencup beadlily
Western red cedar/devils club	Mountain Hemlock/menziesia
Western red cedar/maidenhair fern	Subalpine fir/beargrass
Western red cedar/queencup beadlily	Mountain Hemlock/beargrass
Douglas-fir/ninebark	Douglas-fir/pinegrass
Douglas-fir/common snowberry	Ponderosa pine/ninebark
Douglas-fir/white spiraea	Ponderosa pine/common snowberry



This DPEIS does not assess the impact of historic mining and/or milling activities on or near the Coeur d'Alene Reservation or the Coeur d'Alene River. The Natural Resource Damage Assessment being undertaken by the Tribe and the United States is addressing mining- and/or milling-related resource impacts independent of the IRMP DPEIS.

A map of existing aggregate mining sites (gravel pits) provides a description of pit sites and locations (Figure 3.3.7.1, Gravel Pits).

### **3.3.8 Riparian**

The riparian zones on the Reservation support some of the most productive and diverse plant and animal communities due to the abundance of water, forage and cover. They also serve as transitional areas between aquatic and upland areas that connect different habitats. Riparian habitats have been altered from historic conditions by deforestation, grazing and flood control. These impacts have shifted the vegetation to an early successional stage, and have allowed the colonization of exotic plant species in many cases. Native plant species that are found in riparian zones range from cottonwood, willow, aspen and alder in the overstory, to red-osier dogwood, willow and douglas spirea in the shrub layer.

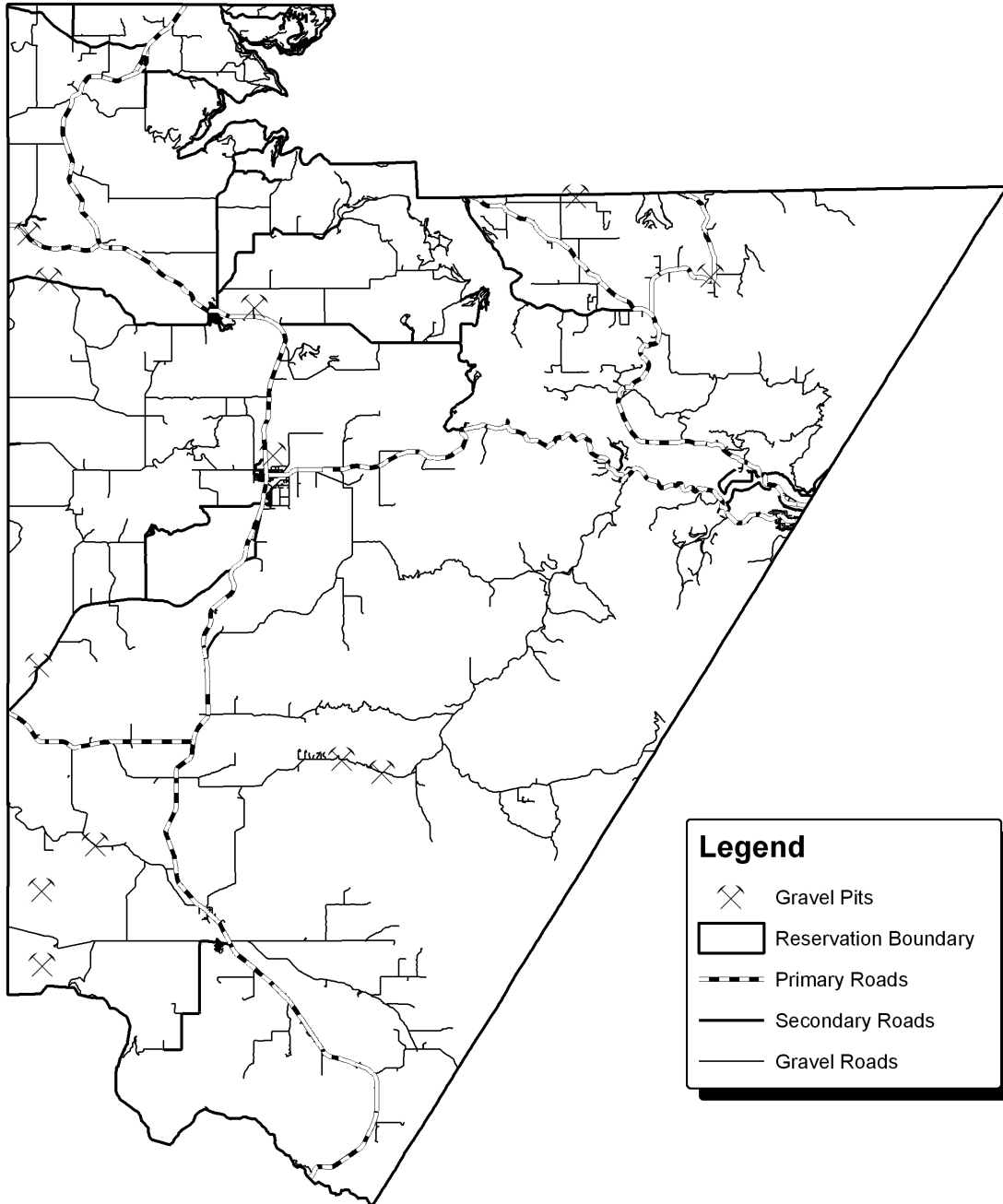
Five lakes lie within the Coeur d'Alene Reservation. Coeur d'Alene Lake is the largest lake in the study area, and the second largest in Idaho. Coeur d'Alene Lake drains an area of approximately 3670 square miles (Lillengreen, *et al.* 1993). It lies in a naturally constricted river valley with the outflow seasonally controlled by the Post Falls Dam. The St. Joe and the Coeur d'Alene Rivers are the two main drainage basins emptying into Coeur d'Alene Lake (collectively 91% of the Lake's drainage area). The remaining 9% of the drainage basin consists of creeks flowing into Wolf Lodge Bay on the east side of the lake, and Windy, Rockford, Mica and Cougar bays on the west side of the lake (Lillengreen, *et al.* 1993).

Hidden, Round, Chatcolet and Benewah Lakes are all located at the Southern end of Coeur d'Alene Lake. These lake levels remain high throughout the summer and fall due to the Post Falls Dam (Peters, *et al.* 1998). Half of Black Lake, which is part of the Coeur d'Alene River flood plain, is also within the Reservation. All of these lake complexes have varying compositions of riparian vegetation and attributes.

The Coeur d'Alene Reservation has a variety of different river and stream systems within its boundaries. Two main drainage basins exist on the Reservation; the Hangman Creek watershed, which drains off of the Reservation and into the Spokane River, and the Coeur d'Alene Lake drainage. Below is a description of the watersheds on the Reservation and the corresponding riparian areas (Figure 3.3.8.1).

**Lake Creek** Includes the Lake Creek watershed, that is a tributary to Coeur d'Alene Lake, and drains an area of 23,117 acres in Washington State, Idaho and the Coeur d'Alene Reservation (Bauer 1998). Forests cover 60% of the total area in this watershed and are generally found in the upper elevations and on steep banks near the lake. Just under 36% of the watershed is cropland with an additional 4% in pasture land.

Figure 3.3.7.1 Gravel Pits



**Legend**

- Gravel Pits
- Reservation Boundary
- Primary Roads
- Secondary Roads
- Gravel Roads

The information depicted on this map is the result of digital analyses performed on a database consisting of information from a variety of governmental and other credible sources. The accuracy of the information presented is limited to the collective accuracy of the database on the date of the analysis. The information is believed accurate and reasonable efforts have been made to ensure the accuracy of the map. However, the Coeur d'Alene Tribe expressly disclaims responsibility for damages or liability that may arise from use of this map. This product is the property of the Coeur d'Alene Tribe and its use is thereby restricted.

D:/data/misc/tiffany/gravelpits.mxd recreated 7/08/05 jtwoteeth

## Protections of riparian areas for stream classes 1, 2, and 3

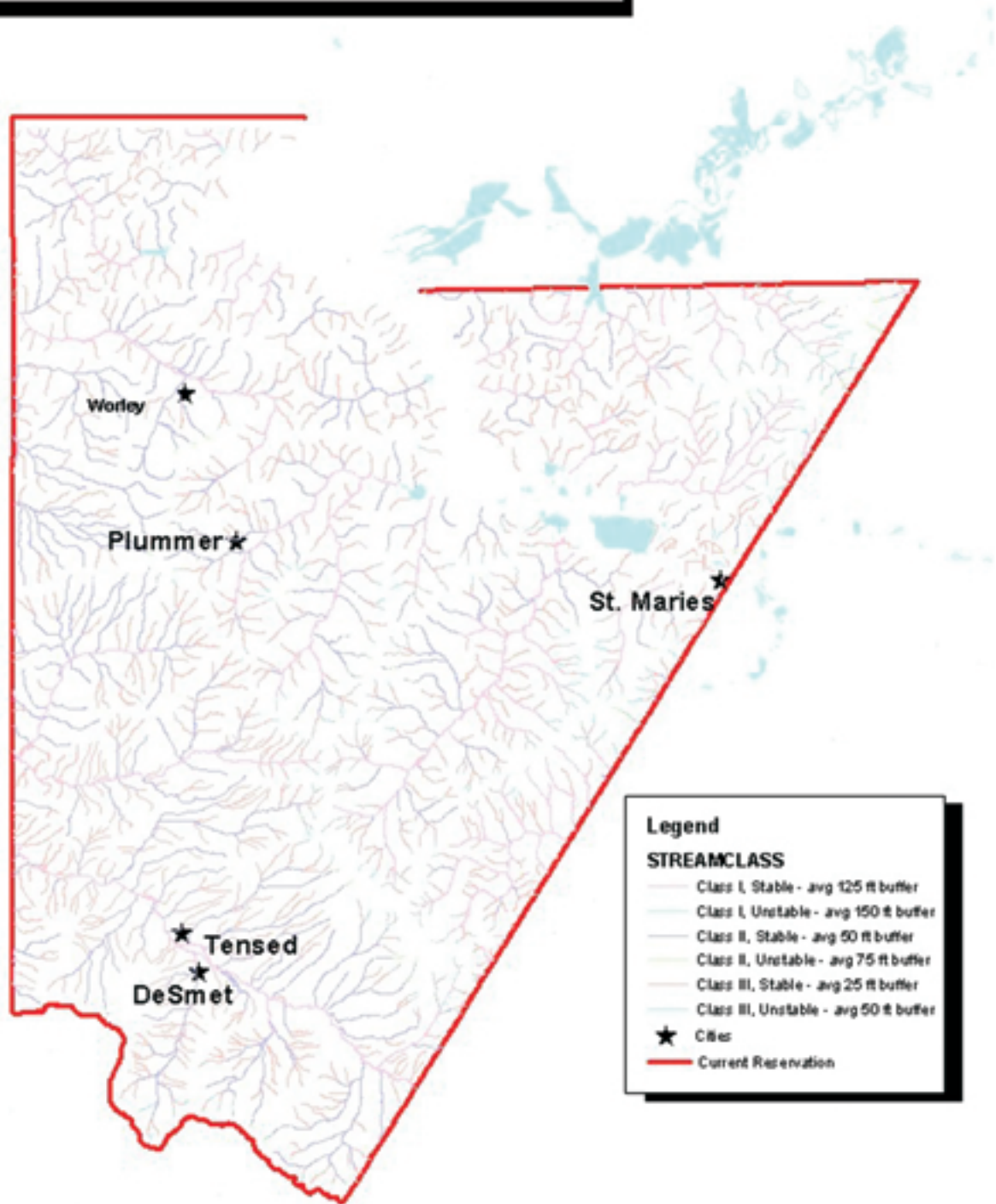


Figure 3.3.8.1 is a map of Class I, II and III streams on the Reservation, including recommended riparian protection buffers (refer to Appendix E for details on riparian recommendations).

**Plummer Creek** Includes the Plummer Creek watershed, that drains an area of 27,732 acres and empties into Chatcolet Lake approximately five miles east of Plummer, Idaho (Krueger 1998). This watershed lies entirely within the Coeur d'Alene Reservation boundaries. Land use types are as follows in the Plummer Creek watershed; 22% agricultural, 8% pasture and hay land, 63% forest land and 1.5% urban development (Krueger 1998c). The remaining land is either grassland or newly planted coniferous trees. Portions of both U.S. Route 95 and State Route 5 pass through the watershed. This watershed also includes Little Plummer Creek and Peedee Creek tributaries.

**Benewah Creek** Includes the Benewah Creek watershed that drains approximately 37,447 acres and includes 136 miles of perennial and intermittent tributaries. The watershed lies completely on the Coeur d'Alene Reservation (Cd'A Tribal GIS 1998). The creek discharges into Benewah Lake which is located at the southern portion of Coeur d'Alene Lake. Vegetation coverage consists of young and regenerating forest (31%), mature forest (53%), grass and forbs (9%), and shrub (7%).

**St. Maries/St. Joe Rivers** Includes a portion of the St. Joe and St. Maries Rivers, that drain approximately 1,888 square miles. This group includes Alder Creek, Cherry Creek, John Creek, Little John Creek, Hells Gulch Creek and all other tributaries which drain into the St. Maries or St. Joe Rivers.

**Coeur d'Alene Lake tributaries** Includes several other smaller creeks and perennial streams that drain directly into Coeur d'Alene Lake, or the Coeur d'Alene River. This group includes Fighting, Bellgrove, Cave Bay, Unnamed Cave Bay, Aberdeen Bay, Cotton Bay, O'Gara Bay, Shingle Bay, Black, Willow, and Evans Creeks.

**Hangman Creek** This group includes Hangman Creek proper, Little Hangman and Rock Creeks. The headwaters of Hangman Creek Watershed begin approximately 10 miles southeast of Tensed, Idaho. The creek flows in a northwesterly direction, entering the state of Washington seven miles northwest of Tensed. The watershed features a classic dendritic pattern which includes three major subwatersheds: Mission Creek, Nehchen Creek, and Lolo Creek. These subwatersheds total approximately 87,000 acres, only part of which are on the Reservation.

### 3.3.9 Soil

Soil is a basic element of the environment upon which plant and animal life depend. Soil productivity is a value-based condition of a site and ordinarily reflects a yield or potential yield of some vegetative commodity such as bushels of wheat, tons of forage, or volume of timber. The inherent yield capacity of the soils found on the Reservation is extremely variable, depending on the soil type and location. For instance, wheat yield can range from 30 bushels per acre on a Worley silt loam on Allotment #407 to 90 bushels per acre on a Palouse silt loam on Allotment #43 (Coeur d'Alene Tribe 1998b). This wide range of yield potentials makes a quantitative comparison of effects impossible.

For this reason, changes or impacts to soil quality characteristics by the alternatives are evaluated by changes in land use rather than attempting to describe the effects on potential yields. Soil

quality characteristics are erosion potential, chemical fertility, organic matter content, soil-dwelling organisms, and structure, porosity, and bulk density.

Erosion is the physical movement of soil from one place to another. Erosion occurs as a result of the action of wind, water, or machinery on the surface of the soil (Table 3.3.9.1). The loss of surface soil causes a loss of nutrients and organic matter, reduced effective rooting depth of the remaining soil, breakdown in soil structure, and reduction in plant growth (NRCS 1996A).

**Table 3.3.9.1 Erosion Rates**

<i>In Tons/acre/year</i>	<i>Good Conservation</i>	<i>Minimal Conservation</i>	<i>No Conservation</i>
Highly Erodible Soils (HEL)	3–7	5–15	15–35
HEL with bluegrass on it	1	Negligible	Negligible
Non-HEL ground	0 - 5	No data	No data

The chemical fertility of the soil is the relative abundance of mineral nutrients available for plant growth. Major nutrients include nitrogen, phosphorus, potassium, and sulfur. Minor nutrients include, among others, calcium, magnesium, manganese, zinc, and boron. Chemistry of soils can change based on the types of use.

Soil organic matter is that fraction of the soil comprised of anything that once lived that is in various stages of decomposition. Organic matter provides a carbon source for soil microbes, aids in storing water in the soil, aids in the retention of nutrients (particularly nitrogen), helps maintain low bulk densities, and reduces the negative impacts of pesticides and other pollutants (NRCS 1996B).

Soil-dwelling organisms can include burrowing mammals (e.g. moles, voles), insects, mites, spiders, worms, nematodes, fungi, bacteria, and protozoa. The larger organisms generally shred larger plant material and mix the soil through burrowing activities. Small organisms feed on the by-products of the large organisms in a decomposing process which cycles nutrients and organic matter. The burrowing of the larger animals also provides channels for water infiltration. Fungal hyphae and slime from bacteria bind soil particles together forming water-stable aggregates that are more resistant to erosion than the unincorporated particles. Formation of particle aggregates also creates large pore spaces in the soil, which aids root penetration and infiltration of water and air (NRCS 1998).

Structure is the general make-up of a soil and includes (among others) texture, porosity, bulk density, type and degree of soil aggregation, and the type and degree of horizonation (layering). Structure is directly related to the minerals from which the soil was formed. Most soils in the western portion of the Reservation were formed from deep layers of wind-deposited silts and clays. Soils in the eastern portion of the Reservation formed from sedimentary, metasedimentary, and basaltic rock. All soils on the Reservation have or had a cap of light-textured volcanic ash deposited after eruptions of volcanoes in the Cascade range of Oregon and Washington (Harvey, *et al.* 1989).



Porosity refers to the size and distribution of pores (spaces) in a soil and is directly related to root penetration and the infiltration of water and air. Bulk density refers to the weight of a soil for a given volume and is used as a direct measure of porosity and an indirect measure of organic matter content. Increased bulk density is associated with low porosity and low organic matter. Bulk density decreases as porosity and organic matter increases. As a result, the lower the bulk density (higher porosity), the greater the root penetration and water/air infiltration.

By design, all farming practices used to produce commodity crops affect soils. Plowing and cultivation expose bare soil to erosion from wind and water. Repeated downhill plowing and out-field plowing are both types of mechanical erosion that move soil one direction over time. Plowing and cultivation also alter soil structure and habitat for soil-dwelling organisms by physical alteration. Repeated plowing in soils heavy with clays can produce a nearly impervious “plow pan” at the plowing depth that prevents or inhibits water infiltration.

Crop rotation, divided slope cropping, no-till farming, and use of perennial crops such as hay and bluegrass reduce the amount of erosion caused by agricultural practices. Summer fallowing and annual cropping using conventional tillage expose soils to accelerated rates of erosion (Sutherland 1989; Kootenai-Shoshone Soil Conservation District, *et al.* 1991).

When soils are tilled, organic matter is decomposed faster because of changes in water, aeration, and temperature conditions. Most organic matter is lost within the first 10 years after clearing of wooded areas or tilling native grasslands (NRCS 1996B). Loss of nutrients generally accompanies loss of organic matter. Organic matter can be increased in tilled soils by reducing the amount of tillage, applying animal manure or other carbon-rich waste, or using no-till or mulch-till practices. Nutrients can be replaced by applying chemical or natural fertilizers.

Grazing impacts to soils are associated with very long-term or intense short-term usage. Soil structure and abundance of soil organisms are impacted by compaction of the soil by the animals’ hooves, especially if grazing occurs when the soil is wet. Dominant Soils on the Reservation include:

- \* Ardenvoir—Huckleberry
- \* Huckleberry Silt Loam
- \* McCrosket—Ardenvoir Association
- \* Santa Silt Loam
- \* Taney Silt Loam

### **3.3.10 Water**

#### **3.3.10.1: Ground Water**

Ground water includes any sub-surface flow ranging from the deepest confined aquifer to shallow sub-surface flow. Ground water is susceptible to contamination by a number of pollutants that might be present in the soil. Ground water that percolates deep into the earth has a lesser impact on terrestrial and aquatic species than shallow sub-surface flow. Microorganisms clean deeper



ground water, as it filters through the soil, to become relatively isolated from local terrestrial communities. However, even deep ground water can resurface in springs, wetlands or other areas where an aquifer meets the surface.

Pollution of shallow sub-surface flow has a greater impact on the natural environment because it has a tendency to re-enter surface run-off. This makes clean ground water not only important to humans but also fish, wildlife, aquatic macrophytes, macroinvertebrates, riparian plants, and wetland species. The degree to which contaminated ground water may affect these organisms is dependent on the concentration of the pollutant and that species' resistance to it.

The quality of ground water in Idaho's aquifers is influenced by both natural factors and by human activities. Natural factors affecting ground water quality include; the chemistry of precipitation; the dissolution of organic and mineral substances as the water percolates through earth materials; and the length of contact of the ground water with soil and rocks of the aquifer (Ground Water Quality Council 1996). Human activities that impact ground water quality are water withdrawal from the system, and contamination with biological or chemical substances.

Potential sources of ground water contamination on the Reservation include such point sources as surface spills, leaking underground tanks, and landfills. These types of contamination tend to be concentrated in urban areas, but can occur in rural areas on the Reservation. Potential non-point sources of contamination on the Reservation include field application of fertilizers and other agricultural chemicals and urban runoff. Although these sources are usually individually diffuse, the cumulative effect of a high density of non-point sources results in ground water contamination.

According to 1998 Underground Storage Tank (UST) inventory information provided by the Tribe, a total of 97 tanks existed on the Reservation, 68 of which have been closed or removed, leaving 29 USTs which have not been closed or removed. Based on EPA inspections in 1993, three USTs, one in Worley, one in St. Maries, and one in Tensed, were on the leaking underground storage tank (LUST) list (Coeur d'Alene Tribe 2000b).

Most Reservation residents receive their drinking water through public supply systems or small private wells. Other than the City of St. Maries water supply, which lies outside of the Reservation, nearly all drinking water is derived from ground water sources. The EAP Assessment focused on recorded public and private systems. However, there may be private wells or surface water withdrawals that are not recorded and where no information was available (Coeur d'Alene Tribe 2000b).

Drinking water quality and contamination appeared to be a potential health concern for many of the individuals interviewed. Several individuals mentioned that they had lost confidence in their local water supply and had elected to buy and drink bottled water. The number of drinking water "boil orders" in the recent past, and an occasional objectionable taste and odor, including a noticeable chlorine taste, were cited as the primary reasons for switching to alternative drinking water sources. Some anecdotal information regarding the contamination of shallow, dug wells and the presence of nitrate in ground water was provided by the interviewees (Coeur d'Alene Tribe 2000b).

Nearly all of the monitoring data obtained regarding drinking water quality and contamination were related to systems using ground water sources. While no data were obtained for the St. Maries

public water supply system, monitoring data are available through the Idaho Division of Environmental Quality and the EPA Region 10. Based on a conversation with one health official from St. Maries, there have been no obvious health problems associated with drinking water in that area.

Public supply systems for which data were obtained include DeSmet, Tensed, Plummer, Worley, the Coeur d'Alene Tribe's Sub-Agency in Plummer, and the Coeur d'Alene Bingo Hall and Casino. Data were also obtained for about 25 individual wells across the Reservation. Records for most wells on the Reservation were obtained through the Idaho Department of Water Resources and the Indian Health Service. The following are the major findings of this section:

- \* The vast majority of public and private wells on the Reservation are between 250 and 400 feet deep. Because of the depth of most wells, and because of the presence of relatively impermeable layers of clay or metamorphic rock between the surface and most drinking water sources, drinking water sources in most areas appear to be well protected from potential sources of contamination.
- \* Available monitoring data and other information indicate that most drinking water quality violations are likely the result of contamination in the delivery system, either from water delivery pipes or home plumbing.
- \* Drinking water violations for lead and copper on the Reservation were very infrequent and, in some cases, samples appear to have been taken from water taps that were not normally used for drinking water consumption. These violations appear to result from the corrosion of pipes or other plumbing fixtures. Drinking water violations for total coliform were the most common and were most frequently observed in the City of Plummer water supply system.
- \* Total coliform bacteria is the most widely used indicator organism for drinking water, and the presence of these bacteria may indicate possible contamination by a number of other bacteria that may cause illness. They have been most frequently present in systems when there are leaks in water mains or when a system is otherwise "open" for repairs, construction, or maintenance. Data do not indicate the presence of fecal coliform in association with total coliform in any of the public supply systems.
- \* Iron and manganese drinking water violations in nine private wells were for exceedance of secondary drinking water standards. These metals are believed to have only aesthetic effects, such as taste, color, or odor.
- \* In wells for which monitoring data are available, no agricultural chemicals or Volatile Organic Compounds (VOCs) were detected.
- \* Historical information indicates that in the late 1970s there were shallow wells and poorly constructed deep wells that were a health hazard due to seepage from septic tanks. This problem was believed to be most serious in the Tensed area. It is not known if the same conditions exist today.
- \* Water quality, condition, and vulnerability of most private wells appear to be largely unknown.

- \* Infants and children are exposed to more waterborne contaminants relative to their size than are adults. One-year-olds drink more than twice as much water relative to their size as do adults.

Based on the available information, drinking water supplies that appear to be most vulnerable to contamination are:

- \* shallow wells, if they are near potential contamination sources
- \* poorly constructed or poorly maintained wells
- \* supply systems that are frequently “open” due to breaks or construction
- \* public or private systems using highly corrosive water, especially older systems (Coeur d’Alene Tribe 2000b)

The ground water monitoring that is done on the Coeur d’Alene Reservation by the Idaho Department of Water Resources is included as part of a network of approximately 1,600 wells and springs used to evaluate ground water quality throughout Idaho. Twenty-three sites were sampled on the Coeur d’Alene Reservation during 1997. Wells are sampled yearly for the following parameters: temperature, pH, specific conductance, alkalinity, fecal coliform bacteria, common ions, nutrients, selected trace elements, radioactivity, volatile organic compounds, and pesticides.

The Idaho Department of Water Resources classifies the aquifer underneath the Reservation as an unconsolidated alluvium, which is made up of sand, gravel and some clay (Idaho Department of Water Resources 1998). Due to the geology and associated aquifer substrates, high levels of iron, manganese, and zinc are found naturally in the ground water. Data from the IDWR 1991-93 and 1997, Ground Water Quality Monitoring Programs reveal elevated concentrations of these minerals at many of the wells on the Reservation in Plummer, and the second near Little Hangman Creek. The Plummer well is surrounded by pasture and agricultural land, with the town lying just down gradient. A concentration of 9.7 mg Nitrate/l was detected in this water. Contamination at this well was believed to be a result of fertilizer leaching into the ground water from the agricultural land above. The well was not used for domestic purposes, but rather as a water source for stock animals. The second impacted well had a Nitrate concentration of 5.1 mg/l. Although not as high as the first well, this elevated amount indicates some sort of contamination. Due to the location of this well, the elevated Nitrate concentrations were most likely a result of leaching fertilizers from the adjacent farmland.

Although grazing can contribute fecal bacteria to surface runoff, it appears to have little effect on bacterial concentrations in ground water (Mosley, *et al.* 1998). This is due to the fact that most fecal bacteria are readily filtered by the soil. Studies with *Escherichia coli* have shown that 92 to 97% of the bacteria filter out in the top four-tenths of an inch of soil (Mosley, *et al.* 1998).

Changes in hydrology are really changes in environmental conditions or processes. Thus, for purposes of this assessment, the concern over hydrologic changes was treated as an environmental element.

### 3.3.10.2: Surface Water

#### Hydrologic Changes

Hydrologic changes are those changes related to the quantity and timing of surface water runoff. Specific parameters include peak flows, low flows, annual water yield, and channel conditions (i.e., bank and channel stability). Those general categories of sources of environmental change that are currently associated with the Reservation affecting these hydrologic parameters include:

- \* Agricultural Practices
- \* Transportation Systems
- \* Forestry Practices
- \* Water Systems
- \* Human Habitation

Perhaps the greatest effect agriculture can have on stream hydrology is through the conversion of forest and native grasslands to croplands. Reductions in forest cover can lead to increases in peak flow, can increase annual yields, and can create lower flows during the summer months. Associated with this impact is the conversion of wetlands to croplands. Loss of wetlands reduces the watershed's water holding capacity. In addition, extensive dike and drainage systems have been constructed to drain land for agriculture on the lower St. Joe River, and various places in the Hangman Creek Watershed.

The primary concern for forestry practices is the loss of forest canopy reducing evapotranspiration, and a reduction in the amount of snow lost through interception and evaporation. Logging systems, especially tractors or rubber tire skidders, can cause soil compaction, and rutting. This will reduce infiltration and increase surface flow. Slash burning can create hydrophobic soils, reducing infiltration. This is especially true for large slash piles, and when eliminating the heavy fuel loading associated with clear cuts or seed tree cuts on grand fir/hemlock/cedar sites. Current Tribal Forest Plan Management Standards and Guidelines address ways of reducing these impacts throughout the Reservation lands.

With increases in human population through the Reservation and the Tribe's aboriginal territory, a greater demand for roads, new construction, and other development will add impervious surfaces to the area, changing stream hydrology (Maguire 1997). Urbanization will alter the hydrology of storm water runoff in a number of ways:

- \* Increased magnitude/frequency of severe floods
- \* Increased frequency of erosive bankfull and sub-bankfull floods
- \* Reduced ground water recharge
- \* Higher flow velocities during storm events

Reservoirs, surface water diversions, and wells have the potential to affect water quantity. Wells, which reduce ground water levels, could have a cumulative effect on surface water flow, depending on water table slope and drainage pattern. There is no site-specific data for the Reservation on present day or historical ground water elevations. Below is information by watershed or LMA for the Reservation.

**Lake Creek** Removal of forest canopy cover, due to both clearing for agricultural purposes and forest harvest activities, has increased peak flows since settlement. Peak discharge modeling indicates that peak discharges have increased from 55% to 83% for 5 year to 100-year events respectively, from pre-settlement period to current conditions (Coeur d'Alene Tribe 1998b). It is likely that these potential increases in peak flows have resulted in increased flooding and channel instability.

Land clearing for agricultural purposes, grazing and timber harvest have caused damage to riparian vegetation and function. This has resulted in highly erodible stream banks, unstable stream channels, and braided stream reaches (Graves et al 1990; Lillengren, *et al.* 1993).

**Plummer Creek** Removal of forest canopy cover, due to both clearing for agricultural purposes and timber harvest activities, has increased peak flows since settlement. Peak discharge modeling indicates that peak discharges have increased from 62% to 83% for 5 year to 100-year events, respectively, from pre-settlement period to current conditions (Krueger 1998c). However, despite these increases in peak flows in streams described as having erodible banks, the channel remains stable (Graves, *et al.* 1990). It would be expected that these potential increases in peak flows have also contributed to increased flooding in Plummer Creek.

**Benewah Creek** Little information is available about changes in peak flow, low flow or annual yield in the Benewah Creek watershed. However, based on land use patterns it is likely that changes have occurred. Graves, *et al.* described the stream channel and banks of the creek as stable in 1990.

Measured base flows are typically less than 25 percent of average annual flow. Furthermore, more than 50 percent of the stream channel inventoried in 1993-1994 indicated poor to fair stability (Lillengreen *et al.* 1996). Continuous bank cutting in some stream reaches is a result of reduced vegetative bank cover, simplification of stream channels, and increased peak flows.

**St. Joe/St. Maries** Information on peak flow was not available for this watershed. However, it might be expected that increases have occurred, based on land use patterns. For example, construction of dikes, draining of wetlands and conversion to agricultural land would alter the hydrology of the river by converting its flood storage capabilities. Although hydrographs do not exist for the river, this change could be expected to increase the peak flow of the system.

Channel conditions appear to vary considerably within this watershed group. In Hell's Gulch, clearing of lands for agricultural purposes and grazing have left little riparian vegetation, particularly in the lower reaches. This has led to highly erodible stream banks, unstable stream channels, and braided stream reaches (Graves, *et al.* 1990). Conversely, Alder Creek is described as having stable banks and channel (Graves, *et al.* 1990; Lillengreen, *et al.* 1993).

**Coeur d'Alene Lake Tributaries** Information on peak flow increases in tributaries of the lake was not available, however, it might be expected that increases have occurred, based on the results found for the Lake Creek and Plummer Creek watersheds.

Channel conditions appear to be variable over the watershed. In Bellgrove, Fighting, Nehchen, and Willow Creeks, clearing of lands for agricultural purposes, grazing practices, and logging adjacent to streams have caused damage to riparian zones, resulting in erodible stream banks, un-

stable stream banks and channels, and braided stream reaches (Graves, *et al.* 1990). Conversely, Black and Evans Creeks are described as having stable channels (Graves, *et al.* 1990; Lillengreen, *et al.* 1993).

**Hangman Creek** Changes from forest land to crop, pasture, and urban uses has impacted hydrology in the Hangman Creek watershed. Reduced low flows restrict aquatic resources (NRCS 1994). Wetlands adjacent to the stream have been drained to support farming (Spokane County Conservation District and Washington Department of Ecology 1994).

Lower reaches of the drainage have been channelized to accommodate roads, and meanders have been cut off, with subsequent increases in channel gradient. As a result, these activities have influenced stream bank stability in the lower reaches, resulting in flood damage, excessive stream bank erosion, and low mid-summer flows (Spokane County Conservation District and Washington Department of Ecology 1994; NRCS 1994).

### **Total Maximum Daily Load**

A Total Maximum Daily Load (TMDL) specifies the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and allocates pollutant loadings among point and nonpoint pollutant sources (EPA 2000). By law, EPA (Environmental Protection Agency) must approve or disapprove 303 (d) lists and TMDL's established by States, Territories, and authorized Tribes. If a State, Territory or authorized Tribe submission is inadequate, EPA must establish the 303 (d) list or the TMDL (EPA 2000).

A TMDL can be broken down further based on sources of pollutants. These pollutants fall into two categories: point sources which receive wasteload allocations and nonpoint sources, which receive a load allocation. This also includes natural background. A TMDL also must include a margin of safety to allow for any uncertainties in the scientific methods used to derive the TMDL. **TMDL= Wasteload Allocation (point sources) + Load Allocation (nonpoint sources and natural background) + Margin of Safety.**

TMDL's are currently being completed for the following streams, which lie wholly or partially within the Reservation:

**Table 3.3.10.2.1 Coeur d'Alene Reservation TMDL Streams**

<i>Stream name</i>	<i>target date for completion</i>	<i>pollutant(s) of concern</i>
Lake Creek	1999	Sediments
Fighting Creek	1999	Sediments, Nutrients, and Habitat Alteration
Willow Creek	1999	Sediments
Black Lake	1999	Nutrients
Benewah Creek	2002	Sediments, Nutrients, Dissolved Oxygen and Habitat Alteration
Hangman Creek	2005	Sediments, Nutrients, and Bacteria
Little Hangman Creek	2005	Nutrients
Alder Creek	2006	Sediments



### 3.3.11 Wetlands

A functional wetland is defined as one that a) provides sediment and nutrient filtration such that waters entering Reservation streams do not carry excess pollutants, and b) provides habitat for the full assortment of native fish and wildlife that use wetland habitats.

An estimated 21,417 acres of Palustrine Wetland vegetation has been converted to agricultural cropland and other human development, which represents an approximately 83% loss of estimated original wetlands on the Reservation (Coeur d'Alene Tribe 2000b). An estimated 114,411 acres of combined forest, grassland (including native bunchgrass prairie), and shrub types have been converted to cropland and pasture.

Wetlands are found on the Reservation in all of the watersheds or LMAs, associated with all of the rivers, streams and creeks and interspersed within agricultural and forest land

*Littoral wetlands* (those associated with shallow lake areas) are defined as those of a Lacustrine system that extends from shore to a depth of 2 meters (or 6.6 feet) below low water or to the maximum extent of nonpersistent emergent plants (Mitsch 1993). These types of wetlands are found on the Reservation in association with Coeur d'Alene, Black, Benewah, Chatcolet, Hidden and Round Lakes. For the purposes of this report we will not be considering deep-water habitats in our discussion of wetlands on the Reservation.

*Palustrine Wetlands* are also common on the Coeur d'Alene Reservation and exist in association with lakes, the flood plains of rivers and streams, and as isolated wetlands located in low areas, or depressions. Palustrine wetlands are scattered throughout the Coeur d'Alene Reservation in the forests, the flood plains of all of the rivers and streams, in and around agricultural fields, and around the boundaries of lakes. Estimates taken from a recent soil survey map reveal that historically there may have been as many as 27,664 acres of Palustrine wetlands on the Reservation (Cd'A Tribal GIS 1998; Krueger 1998b). A National Wetland Inventory estimated there to be 4,631 acres of wetland on the Reservation in 1987 (USFWS, National Wetland Inventory), which would amount to an 83% loss.

Of particular interest and cultural value to the Coeur d'Alene People is the wetland associated with the floodplain of the St. Joe River and Hangman Creek. This ecosystem is unique to the Reservation for its value to wildlife, waterfowl, fisheries, and culturally important plants. Particularly, camas and water potatoes, as well as other Tribal culturally important species, are associated with healthy wetlands.

The following wetland areas and quantities are estimates derived from U.S. Fish & Wildlife Service's National Wetland Inventory (NWI) 1999 and hydric soils maps analyzed by the Coeur d'Alene Tribe's G.I.S. Program. Wetland areas are quantified per watershed utilizing hydric soils to estimate historic wetlands and NWI to estimate current wetlands. It is important to note that NWI has difficulty identifying and delineating wetlands less than 10 acres in size and wetlands with relatively dense overstory. One of the most widely accepted classification systems and definitions of wetlands including acceptance from the U.S. Fish & Wildlife Service, defines wetlands as:

“Wetlands are lands transitional between terrestrial and aquatic systems where the water table is usually at or near the surface or the land is covered by shallow water. For purposes of this

classification wetlands must have one or more of the following three attributes: (1) at least periodically, the land supports predominantly hydrophytes (water-loving plants); (2) the substrate is predominantly undrained hydric (wet) soil, and (3) the substrate is non-soil and is saturated with water or covered by shallow water at some time during the growing season of the year (Cowardin, *et al.* 1979).”

**Lake Creek** Based upon hydric soils, the Lake Creek watershed is estimated to historically have had 382 acres of wetlands. The quantity of wetlands in the watershed is currently estimated to be 103 acres based upon NWI. Therefore, it is estimated that wetlands in the watershed have been reduced by 73%.

**Plummer Creek** Based upon hydric soils, Plummer Creek watershed is estimated to historically have had 642 acres of wetlands. The quantity of wetlands in the watershed is currently estimated at 260 acres based upon NWI. Therefore, it is estimated that wetlands in the watershed have been reduced by 60%.

**Benewah Creek** Based upon hydric soils, Benewah Creek watershed is estimated to historically have had 604 acres of wetlands. The quantity of wetlands in the watershed is currently estimated at 373 acres based upon NWI. Therefore, it is estimated that wetlands in the watershed have been reduced by 38%.

**St. Maries/St. Joe Rivers** Based upon hydric soils, the St. Maries/St. Joe Rivers watershed is estimated to historically have had 4,248 acres of wetlands. The quantity of wetlands in the watershed is currently estimated at 1,069 acres based upon NWI. Therefore, it is estimated that wetlands in the watershed have been reduced by 75%.

**Coeur d’Alene Lake Tributaries** Based upon hydric soils, the Coeur d’Alene Lake watershed is estimated to historically have had 2,922 acres of wetlands. Currently, the quantity of wetlands in the watershed is estimated to be 1,280 acres based upon NWI. Therefore, it is estimated that wetlands in the watershed have been reduced by 56%.

**Hangman Creek** Based upon hydric soils, the Hangman Creek watershed is estimated to historically have had 18,628 acres of wetlands. The quantity of wetlands is currently estimated to be 1,606 acres. Therefore, it is estimated that wetlands in the watershed have been reduced by 91%.

### **3.3.12: Wildlife**

“Before the coming of Human Peoples the world was inhabited by powerful Animal Peoples, also known as the “First People”” (Frey and the Schitsu’umsh 2000).

Sustainable, naturally reproducing populations of native wildlife that support both subsistence and limited sport harvest will likely be reached by maintaining the functions and attributes of healthy portions of the ecosystem, and working with modified aspects of the ecosystem to either restore lost ecological components or replace them with other components that produce desirable outputs.

Native plants and animals are important elements of the ecosystem on the Reservation. Spe-

cific plants and animals could occur entirely on the Reservation, as a local population, or could occur both on and off of the Reservation. This is quite often the case for wildlife species which migrate or have large home ranges (*e.g.* waterfowl and big game).

Ungulate populations of moose, elk and deer are considered a high priority on the Reservation. These species are important for the subsistence of many Tribal members and are also some of the most visible wildlife species present on the Reservation. They rely heavily on the lower elevation forests to take advantage of the cover, forage and milder climatic conditions during the winter. Unfortunately, critical winter range habitat has declined due to development and deforestation.

Much of the habitat within and surrounding the Reservation has been altered from historical conditions. Impacts from agriculture are pervasive on the western side of the Reservation, which encompasses the eastern edge of the Palouse Prairie. These impacts include the conversion of Palouse Prairie and forests to agricultural land and the modification of streams to create more room for farming practices. There has also been a decline in the early seral forest species such as ponderosa pine, western white pine and western larch, and a shift to late seral species such as douglas-fir, grand fir and western hemlock. Large diameter trees, snags and down woody material have also decreased and been replaced with younger, smaller stands of dense, mixed species. This has mixed results for wildlife, benefiting species that use younger stands, and causing a decline in species that favor old growth conditions. There are virtually no stands on the Reservation that could be characterized as old growth with large diameter trees, relatively low stocking densities and an abundance of snags and downed woody material.

The key parameters associated with evaluating impacts to these ecosystem elements are the population of a given species, and the diversity of species present. Population reflects the abundance, or number, of each particular species, which occurs at least seasonally on the Reservation. Diversity, as used in this document, refers to the number of species present, at least seasonally, on the Reservation.

Appendix H has a list of species with a habitat description that can be found on the Reservation. For the purpose of this assessment the impacts to wildlife will be concluded based on loss of habitat, fragmentation, and loss of migration corridors.

### **3.3.13: Threatened and Endangered Species**

The U. S. Fish and Wildlife Service has identified six threatened species that may occur within the vicinity of the Coeur d'Alene Reservation. Little information exists that can be used to characterize the distribution and status of most of these species within the Reservation. A brief discussion of each of these species is presented below.

**Gray wolf (*Canis lupus*)** Wolves that may occur within the Reservation boundaries are classified by the U.S. Fish and Wildlife Service as a nonessential experimental population. Quality wolf habitat is characterized by areas of low human disturbance, such as roads, and high densities of big game. The eastern edge of the Reservation could provide some habitat for wolves due to the lower levels of human influence, but other areas within the Reservation would be considered low quality.

The nearest documented wolfpack resides in the upper reaches of the St. Joe River drainage, and is being referred to as the Marble Mountain Pack. There have been unverified reports of wolves within the Reservation boundary, but it is unlikely that these animals would be permanent residents due to the close proximity to civilization. Wolf populations are expected to expand until constrained by resource or human imposed limitations, so occasional sightings within the Reservation can be expected.

**Bald eagle (*Haliaeetus leucocephalus*)** Bald eagles use lands on the Reservation largely as wintering areas. The number of bald eagles using the Reservation varies from year to year depending upon the severity of the weather and the abundance and availability of food sources. Common food sources for eagles on the Reservation include carrion, waterfowl, fish, and small mammals. Wintering eagles have been observed feeding on carrion throughout the Reservation. During more severe winters when carrion tends to be more abundant, eagles can be found throughout the Reservation in all watersheds and at all elevations. During milder winters when carrion is less abundant, eagles tend to frequent shoreline areas around Coeur d'Alene Lake and the riparian corridors associated with the major tributaries to the lake.

It is unknown at this time whether or not there are active eagle nests on the Reservation. However, there are active nests occurring in the near vicinity of the Reservation boundary. As eagle populations continue to grow in the area there will be an increased potential for future nesting to occur.

**Canada lynx (*Lynx Canadensis*)** The US Fish and Wildlife Service listed the lynx as a threatened species on March 24, 2000. Lynx occur in mesic (moderately moist) coniferous forests that have cold, snowy winters and provide a prey base of snowshoe hare. In northern Idaho, lynx habitat generally occurs above 4,000 feet. Characteristics of foraging habitat include a dense, multi-layered understory that provides cover and browse at ground level and at varying snow depths throughout the winter. Habitats that support their primary prey of snowshoe hare include early successional stages resulting from natural disturbance and timber harvest. Older forests with a substantial understory of conifers or small patches of shrubs and young trees also provide lynx foraging habitat.

Den sites are also an important component of quality lynx habitat. Den sites may be located within older regenerating stands or in mature conifer stands that both include large woody debris. For denning habitat to be functional it must be in or adjacent to foraging habitat. Changes in forest structure, human disturbance and access may affect lynx and lynx habitat.

The status and distribution of lynx within the Reservation is largely unknown. The Reservation does support a population of snowshoe hares, but there are very few areas within the Reservation that would provide adequate lynx habitat, and these areas are quite fragmented. It is possible that an occasional lynx could travel through the eastern edge of the Reservation, but it would be unlikely that resident individuals occur.

**Bull trout (*Salvelinus confluentus*)** Bull trout appear to have more specific habitat requirements than other salmonids (Rieman and McIntyre 1993). Habitat characteristics including water tem-

perature, stream size, substrate composition, cover and hydraulic complexity have been associated with their distribution and abundance (Dambacher *et al.* 1997; Jakober 1995).

Stream temperature and substrate composition may be particularly important characteristics of suitable habitats. Bull trout have repeatedly been associated with the coldest stream reaches within basins. The lower limits of bull trout distributions mapped by Lee *et al.* (1997) correspond to a mean annual air temperature of about 4°C (Meisner 1990). Temperature may be strongly influenced by land management and climate change and both may play an important role in the persistence of bull trout.

Bull trout are more strongly tied to the stream bottom and substrate than other salmonids (Pratt 1992). Substrate composition has repeatedly been correlated with the occurrence and abundance of juvenile bull trout and spawning site selection by adults (Dambacher *et al.* 1997, Rieman and McIntyre 1993, Graham *et al.* 1981, McPhail and Murray 1979). Fine sediments can influence incubation survival and emergence success, but might also limit access to substrate interstices that are important cover during rearing and overwintering (Weaver and White 1985, Goetz 1994, Jakober 1995).

Bull trout can currently be found in Coeur d'Alene Lake. Population surveys conducted within the lake over a three-year period suggest that a small population of adfluvial bull trout rear in the lake. No young-of-year bull trout have been identified. Sampling efforts over a three-year period, however, have only produced one adult bull trout. Coeur d'Alene Lake is considered part of the core refugia for adult adfluvial bull trout.

Bull trout are not currently known to spawn in any of the Reservation streams entering Coeur d'Alene Lake. Population surveys conducted within the upper tributaries over a nine-year period suggest no spawning activity by bull trout. No young-of-year bull trout have been identified. Surveys conducted within the lower stream reaches, however, have indicated at least temporary use by one adult in the last nine years in Lake Creek. This individual likely entered Lake Creek seeking thermal refuge in the late summer and temporary use such as this may occur in the lower reaches of similar tributaries. Trapping efforts over a five-year period have indicated no active migration by bull trout further upstream in the tributaries.

***Ute ladies'-tresses (Spiranthes diluvialis)*** This species is primarily restricted to wetland and riparian areas, including spring habitats, wet meadows and river meanders. It occurs between 4,300 and 7,000 feet in the central Rockies and adjacent plains. Habitat consists of alluvial substrates along perennial stream and rivers that flood in the spring. Soil must be moist to the surface throughout the growing season. It has been found in Idaho along the South Fork of the Snake River. It is commonly known in the *Elaeagnus commutata* (silverberry) community type within the Snake River floodplain. The species may be adversely affected by modification of wetland and riparian habitats resulting from livestock grazing, vegetation removal, excavation, construction, stream channelization, hydroelectric development and operation, and other actions that alter hydrology. There have been no known occurrences on the Reservation but potential habitat is suspected to occur.

***Water howellia (Howellia aquatilis)*** This species is known to occur only in Washington, Idaho and Montana. It is a strictly aquatic species which roots in the sediment of ponds, river oxbows



and sloughs and grows mostly submerged. The two main population centers for the plant occur near Spokane, Washington and the Swan River drainage of northwestern Montana. The lone Idaho population occurs in Latah County, south of the Reservation. There have been no known occurrences on the Reservation but potential habitat is suspected to occur.

### **3.4 Human Environment**

*“After the Gobbler Monster had swallowed most of the Animal Peoples, Coyote tricked the Monster into swallowing him as well. Once inside the monster’s stomach, Coyote was able to free the other Animal Peoples and kill the monster. From the parts of the Gobbler Monster the various Human Peoples, including the Schitsu’umsh or Coeur d’Alene, were created and placed on their respective lands “ (Frey and the Schitsu’umsh 2000).*

#### **3.4.1 Agriculture**

The Coeur d’Alene Tribe depended on the homeland, inundated with gifts from the Creator supplied by Animal Peoples that would provide a yearly subsistence cycle in which roots and berries, fish (salmon), and game meat each contributed about a third to the total diet of the Coeur d’Alene. With the establishment of the Jesuit mission in 1848 came the introduction to a new form of prayer, the “reduction system”, and self-sufficient farming communities. A considerable amount of land within the Reservation has been converted from either forested or grassland to agricultural land since the turn of the century. In 1998 it was estimated that 135,828 acres of land within the Reservation were used for agriculture (Cd’A Tribal GIS 1998). Blue grass, wheat and legumes are the three main crops produced on the Reservation.

Approximately 114,411 acres of forested lands have been cleared for agricultural and other uses. These areas no longer support the native forest, shrub and grassland vegetation which once existed there. Conversion not only removes the trees, but the subsequent and repeated plowing also removes the other native vegetation. This can isolate the remaining forested areas from one another and interrupt the biological and chemical interactions associated with the forests on these lands. The presence of large areas of crop and pasture lands can also affect natural fire regimes, by preventing fires from spreading to forest stands (See Fire Section). Grazing in some of these areas by cattle and sheep has compacted soils, eliminated palatable native vegetation, and decreased conifer regeneration (Krueger 1998a).

Agricultural practices on these lands such as applications of herbicides and pesticides cause off-site drifts, which kill or damage trees, shrubs, or herbaceous plants, both native and non-native. Drift of pesticides also potentially kills beneficial insects, soil-dwelling arthropods, or other wildlife. Heat scorch or escaped fire from burning adjacent fields damage or kill trees and provide conditions conducive to tree-damaging insects or diseases.

Agricultural field burning is practiced on the Reservation and surrounding lands in northern Idaho, primarily for burning of blue grass and wheat fields. The acreage burned varies from year to year.



Approximately 23,000 acres were burned on the Reservation in 2002. The main drawback of burning blue grass fields is the impact on air quality, and subsequent potential health effects, for the month or two that burning occurs each year. The benefits of burning blue grass fields are economic, allowing for more marketable crops of blue grass. Blue grass has done better economically than wheat and other crops in recent years. Blue grass is a perennial crop and it has greatly lessened soil erosion in agricultural fields, especially in areas with Highly Erodible Soils (HEL).

Escapes of crop and weed species and transport of noxious weeds or other non-native plants is also a problem in these agricultural areas. Appendix H contains a list of noxious weeds present on the Reservation.

### **3.4.2 *Development (Commercial and Industrial)***

Nearly all-environmental concerns affecting human health are directly tied to population growth and development patterns on or adjacent to the Reservation. Population growth affects the sources of contamination, through increased rural, urban, commercial, and industrial development, as well as the number of people exposed to those contaminants. Population growth and development can dramatically affect the availability of traditional foods and medicines and other natural resources, and can potentially affect mental well-being by eliminating open spaces and natural resources that provide Tribal cultural, spiritual, and recreational opportunities.

The current Reservation population is estimated to be 6,451 (U.S. Census Bureau 2000). The Reservation population was 5,575, according to the 1990 Census and 4,911 in the 1980 Census. Increasing population and development on the Reservation may increase the number and magnitude of pollution sources, and may increase the population potentially exposed to environmental pollutants. Effects may include:

- \* Increased vehicle traffic, leading to increased air pollution and increased safety hazards.
- \* Increased use of synthetic building materials leading to increased indoor air pollution.
- \* Increased demand on drinking water supply systems leading to increased stress on the delivery system and potential contamination.
- \* Increased stormwater runoff from construction and urbanization.
- \* Increased waste generation and disposal.
- \* Increased sewage disposal.
- \* Increased land development, resulting in decreased availability of Tribal cultural foods and medicines.

Expansion of development may place a larger population in proximity to areas where agricultural chemicals are used and increasing development of tourism facilities, including restaurants, could increase the population potentially exposed to food contamination or drinking water contamination.

It is estimated that the Reservation population will increase by 15 percent over the next 10 years, with the most significant rate of population growth continuing to occur within the rural area of Kootenai County.

### **3.4.3 *Energy***

The Plummer Forest Products (formerly Rayonier) wood burning co-generation plant, built in 1982, is the only energy production facility located on the Reservation. Electricity produced by the facility is sold to Avista Corporation (formerly Washington Water Power). Enough power is produced to run the Plummer Forest Products mill. The co-generation plant operates 24 hours a day, 7 days a week and produces about 5 Megawatts of power every hour. One Megawatt of power is enough to run 600-800 homes, depending upon the energy efficiency of the homes. Several other energy facilities located outside the Reservation boundaries have affected ecosystems on the Reservation.

Avista Corporation, Kootenai Electric Cooperative (KEC) and Clearwater Power are the three main suppliers of electricity to the Reservation. Avista generates much of its own power from six hydroelectric power stations on the Spokane River in Washington and Idaho and from two facilities on the Clark Fork River in Idaho and Montana. Avista also purchases additional power from other sources such as Bonneville Power to meet escalated demands at certain times of the year. Avista sells surplus power to other companies, but they are a net importer of electricity. Avista provides electricity to Northern Idaho's urban areas on and off the Reservation, including St. Maries. Discussion of impacts associated with Avista's generation of energy is not included in this document.

Kootenai Electric Cooperative is a power distributor only, buying their power exclusively from the Bonneville Power grid (Ward 1998), which includes electricity generated from hydroelectric dams throughout the Northwest, and some nuclear reactors. KEC distributes to most of the rural communities on the Reservation including the Plummer, Worley, and Harrison Flats areas. Clearwater Power supplies power to the southern end of the Reservation.

### **3.4.4 *Environmental Health***

The goals of the Tribal Environmental Health program are to ensure that the health and safety of Coeur d'Alene Tribal members and residents of the Coeur d'Alene Reservation are optimized and protected by managing the environmental factors affecting human health and safety.

Prior to 1999, limited environmental health services were provided to the Coeur d'Alene Tribe by a mixture of agencies including the Benewah Medical Center, Indian Health Service, State of Idaho-Panhandle Health District, and the United States Environmental Protection Agency. In November 1999, the Tribe hired its first Environmental Health Specialist (EHS) and directed the specialist to develop a comprehensive environmental health plan that would address present and future environmental health risks facing the Tribe.

Environmental health risks are a subset of the larger universe of public health risks. The environmental health plan developed by the Tribe addresses these risks through nine core program areas, traditionally included in most environmental health programs, and two core areas that are specific for the Coeur d'Alene Reservation. Following consultation with the Benewah Medical Center Health Board and Tribal managers, the core areas were ranked for implementation according to available funding and Tribal priorities. The environmental health core program areas are presented below.

### **Food Protection**

The food protection program consists of routine inspections of all Tribally owned or Native-American/Tribal member owned food service facilities including restaurants, food stands, grocery stores, food distribution centers, celebrations, temporary events where foods are prepared, schools, day care centers, and food manufacturing operations. When fully implemented, the program will consist of twice a year inspections of all permanent establishments and a single inspection for seasonal or temporary food service facilities. Total inspections will be approximately 80 per year. Other important components of this core program include plan review for all new construction or extensive remodels of food service establishments, consultation with operators, investigation of food-borne illness outbreaks, public health education for the community, and mandatory training for all food handlers. It should be noted that the State of Idaho-Panhandle Health District currently inspects non-Native food service establishments on the Reservation.

### **Water Quality (also refer to section 3.3.10 Water)**

The assurance of safe drinking water for human consumption is a primary environmental health concern. Traditionally, environmental health deals with the chemical and bacteriological quality of drinking water, delivery system construction, aquifer protection, and prevention of water-borne illness. When fully implemented, the program will consist of consultations, public health education, public and private water system inspections, bacteriological screening, and disinfections of private water wells.

### **Institutional Sanitation**

In general, institutional sanitation consists of routine health and safety inspections of Tribal public facilities such as schools, daycare centers, senior programs, detention centers, and community buildings. Other types of facilities like the Tribal Hotel/Casino and the Wellness Center are also included. Inspections may be done in conjunction with other agencies such as fire departments, building departments, and the Indian Health Service. Non-Tribal institutions are currently inspected by the State of Idaho. Plan review and consultation services are included in this program.

### **Solid Waste (also refer to section 3.4.9)**

The main objective of this core program is the protection of human health and environmental quality by ensuring proper storage, collection, transportation, and disposal of solid wastes. When mis-handled, solid wastes have the potential to adversely impact human health through contamination of soils, drinking water, surface waters, and air quality. Aesthetics and the potential for spread of disease by way of vectors are other issues that must be considered.

During 2002, the Tribe completed a preliminary assessment of how solid wastes are handled on the Reservation. The assessment revealed some problem areas that will be addressed by this program. Problem areas include several open dumpsites, abandoned landfills, a lack of recycling capability, and a lack of a solid waste management plan.

### **Liquid Wastes**

Protection of human health, water supplies, and the environment by sanitary disposal of sewage is the main goal of this program. Regulation of sewage disposal on the Coeur d'Alene Reservation is presently done by the State of Idaho-Panhandle Health District (for non-Tribal residents) and by the Indian Health Service (for Tribal members).

Both agencies use the State of Idaho Technical Guidance Manual for construction standards and provide plan review and inspection services. Regulatory activities generally center upon small, single family, septic systems. The EHS will act as a liaison between the agencies, provide consultative services, and will respond to general complaints regarding sewage disposal.

### **Vector Control**

Vector-borne diseases have been major causes of human morbidity and mortality throughout history. The majority of vector-borne diseases are spread by arthropods (insects, ticks, spiders, mites, millipedes, and centipedes), however mammals spread diseases such as rabies and Hantavirus. The objectives of this program are protection of human health and safety and limiting or preventing the spread of vector-borne illnesses through control of vectors and their environment, and by public education. Presently, surveillance and public consultation regarding vector-borne illnesses are the main activities.

### **Environmental Health Technician Training**

When implemented, this program will provide instruction and on-the-job experience, at the technician level, for Coeur d'Alene Tribal members interested in pursuing careers in environmental health. As in all other core program areas, adequate funding must be obtained before implementation can take place.

### **Water Recreation (refer also to section 3.4.8 Recreation)**

The central goal for the water recreation program is protection of human health and safety by ensuring proper design, construction, and operation of Tribal public water recreation facilities. Water recreation facilities include swimming pools, hydrotherapy pools, wading pools, spas, water slides, spray pools, and bathing beaches. There are presently six Tribally owned pools on the Reservation. The environmental health specialist is responsible for inspecting all facilities twice per year to ensure that all water quality and safety standards are being met. Additional activities for this program are plan review for new facilities and epidemiological investigation of any outbreaks of water-borne illness.

### **Chemical and Physical Hazards**

Chemical and physical hazards is a comprehensive program intended to address a wide range of threats to human health and safety. Chemical hazards include, but are not limited to industrial chemicals, pesticides, environmental tobacco smoke, household chemicals, and materials such as asbestos, radon, or lead-based paint.

Physical hazards include dangerous buildings, abandoned wells, unsafe homes, plumbing and electrical hazards, biological contaminants, and preventable accidents.

When chemical or physical hazards are observed during routine inspections of public buildings, schools, day cares, and food service facilities, they are documented and brought to the attention of the person-in-charge. At this time, possible corrective measures are discussed including time schedules for making the corrections. Other important aspects of the program are public education, complaint investigation, and consultation.

### **Air Quality (refer also to section 3.3.1 Air Quality)**

The Coeur d'Alene Tribe has an existing Air Quality program that operates out of the Tribal Natural Resources Department. The program deals with both indoor and outdoor air quality issues and the role of the environmental health specialist is to serve as support for the program. Complaint investigation and consultation are the main environmental health activities.

### **Hanford Health Effects**

During the course of its operations, the Hanford Nuclear Site in southeast Washington has released tremendous quantities of hazardous chemicals and radioactive materials into the environment. The Federal Government designated the Coeur d'Alene Tribe and eight other northwest tribes downwind from Hanford as being "affected" by hazardous materials releases. Representatives from the nine affected tribes joined to form the Intertribal Council on Hanford Health Projects (ICHHP) to deal with adverse human health effects that may have resulted from Hanford releases. ICHHP presently meets twice per year in conjunction with meetings of the Hanford Health Effects Federal Subcommittee.

Since 1996, the ICHHP member tribes have received funding through cooperative agreements with the Agency for Toxic Substances and Disease Registry (ATSDR) to develop environmental health capacity to deal with Hanford health effects. The cooperative agreement has been the main source of funding for the Coeur d'Alene Tribe's environmental health programs.

Under the Hanford core program, the environmental health specialist is the Coeur d'Alene Tribe's representative to ICHHP and also serves as a non-voting liaison to the Hanford Health Effects Federal Subcommittee.

The main goals for the program are to advise the Coeur d'Alene Tribe concerning Hanford issues and to continue to develop general environmental health capacity in accordance with the cooperative agreement with ATSDR.

### **3.4.5 Housing**

The Coeur d'Alene Tribe's Planning Department and Tribal Housing Authority are committed to providing the opportunity for safe, comfortable, high-quality homes for all Tribal member and Native American families. The days of barrel stoves, outhouses, and buckets of spring water are at an end. The days of ice forming on interior walls, doors that will not lock or even close, and roofs that leak like sieves will not be tolerated.

The Tribe has provided diverse opportunities for family housing, including unique variations on the Housing and Urban Development (HUD) model, access to private financing, and low-density development. The Tribe will continue to expand these opportunities until every housing need is met. There are currently 238 families on the Tribal Housing Authority waiting list (Coeur d'Alene Tribe 1999).

The 2000 U.S. Census Bureau indicates that there are 4,015 housing units within the Reservation. Of these, 2,486 units are occupied and 1,529 units are vacant. Of the vacant units, 1,308 are listed as seasonal, recreational or occasional use. Of the 2,486 occupied units, 1,963 are owner occupied and 523 are renter occupied. Only 388 or 9.7% of the 4,015 housing units within the Reservation are owned by American Indian and Alaska natives, according to the Census Bureau.

HUD homes have been the primary source of housing for Tribal members. The cost of housing in this region makes it difficult to obtain suitable housing for the low to very low-income families. In addition, there is an acute shortage of housing to meet the needs of the elderly, handicapped and young families. The housing market is limited and available housing lacks affordability or is in need of rehabilitative work (Coeur d'Alene Tribe 2003a).

### ***3.4.6 Infrastructure: Power/Telecommunications/Transportation***

The Tribe and local government are working to expand infrastructure capacities throughout the Reservation. From fire protection to waste water, leaders understand that the current period of growth and development is limited not so much by the size of dreams or number of opportunities, but the capacity of domestic water system and number of emergency responders. Awareness of existing infrastructure is included in every plan and development undertaken by the Tribe. An inter-governmental committee is working to address emergency services; the Tribe and agencies such as Indian Health Service are evaluating wet (water, sewer) utility capacities and a transportation planner is on Tribal staff. Private industries such as Kootenai Electric Cooperative, Avista and Clearwater Power Cooperative supply 'dry' (electric) utilities within the Reservation. Verizon supplies telephone service and Elk River supplies cable service on the Reservation.

Environmental considerations associated with infrastructure include poor percolation of some area soils, the detrimental impacts of storm water run-off, overuse of ground water resources, pollution from sewer systems and septic systems, health concerns associated with overhead power lines and electrocution of raptors by power lines.

#### **3.4.6.1: Roads/Transportation**

Prior to settlement in this area by non-Indians, the Coeur d'Alene people relied on a trail network for foot and horse travel. Since the 1850's, an extensive network of roads has slowly been constructed on the Reservation. Coeur d'Alene Tribal G.I.S. (2003) estimates that today there are a total of 1649 miles of road on the Reservation (2003). U.S. Route 95, and State Routes 3, 5, 97, 58, and 60 are the primary highways on the Reservation. These highways make up a large portion of the 208 miles of paved road. Non-paved roads cover another 1441 miles of surface on the Reservation, divided into 473 miles of gravel and 968 miles of native surface roads.



Road mileage is increasing on the Reservation. For example, Lake Creek and Plummer Creek watersheds combined have had 76 miles of forest road constructed from 1974 to 1995 (Coeur d'Alene Tribe 1998b; Krueger 1998c). There are also plans to expand Highway 95 from a 2-lane highway to a 4-lane highway from Fighting Creek to Worley on the Reservation, beginning in 2004 (Table 3.4.6.1).

**Table 3.4.6.1 Road Miles by Watershed**

	<i>Primary</i>	<i>Secondary</i>	<i>Gravel</i>	<i>4wd Roads</i>	<i>Total Road miles by WS</i>	<i>Sq Miles by WS</i>	<i>Road Density in miles/ square mile</i>
Hangman Creek	49.57	118.53	189.51	449.34	806.95	309.05	2.6
Lake Creek	2.83	11.99	19.43	113.48	147.73	33.65	4.4
Plummer Creek	8.08	10.19	43.76	39.69	101.72	43.57	2.3
Benewah Creek	1.12	0.36	41.3	154.5	197.28	53.71	3.7
St. Maries/St. Joe	19.59	40.41	92.29	561.8	714.09	164.97	4.3
CDA Lake	45.54	62.9	212.73	535.27	856.44	231.99	3.7
Total	126.73	244.38	599.02	1854.08			

\*\*\*\*These numbers are just estimates and not approximate values, so numbers will not add up in some cases due to human error and spatial extent of the data.

Some forest roads have been decommissioned, but more roads are being built than are being obliterated. Current construction practices tend to reduce sediment delivery, on a per mile basis. However, increased road building will offset any gain made by improved construction. Road densities for each of the Land Management Areas are listed below (note: road miles are calculated by watersheds and include areas both on and off of the Reservation):

The Tribe has incomplete data on railroads, gas, electrical and other utility corridors on the Reservation. What is known is contained in Figure 3.4.6.1.

### **3.4.7 Pesticides**

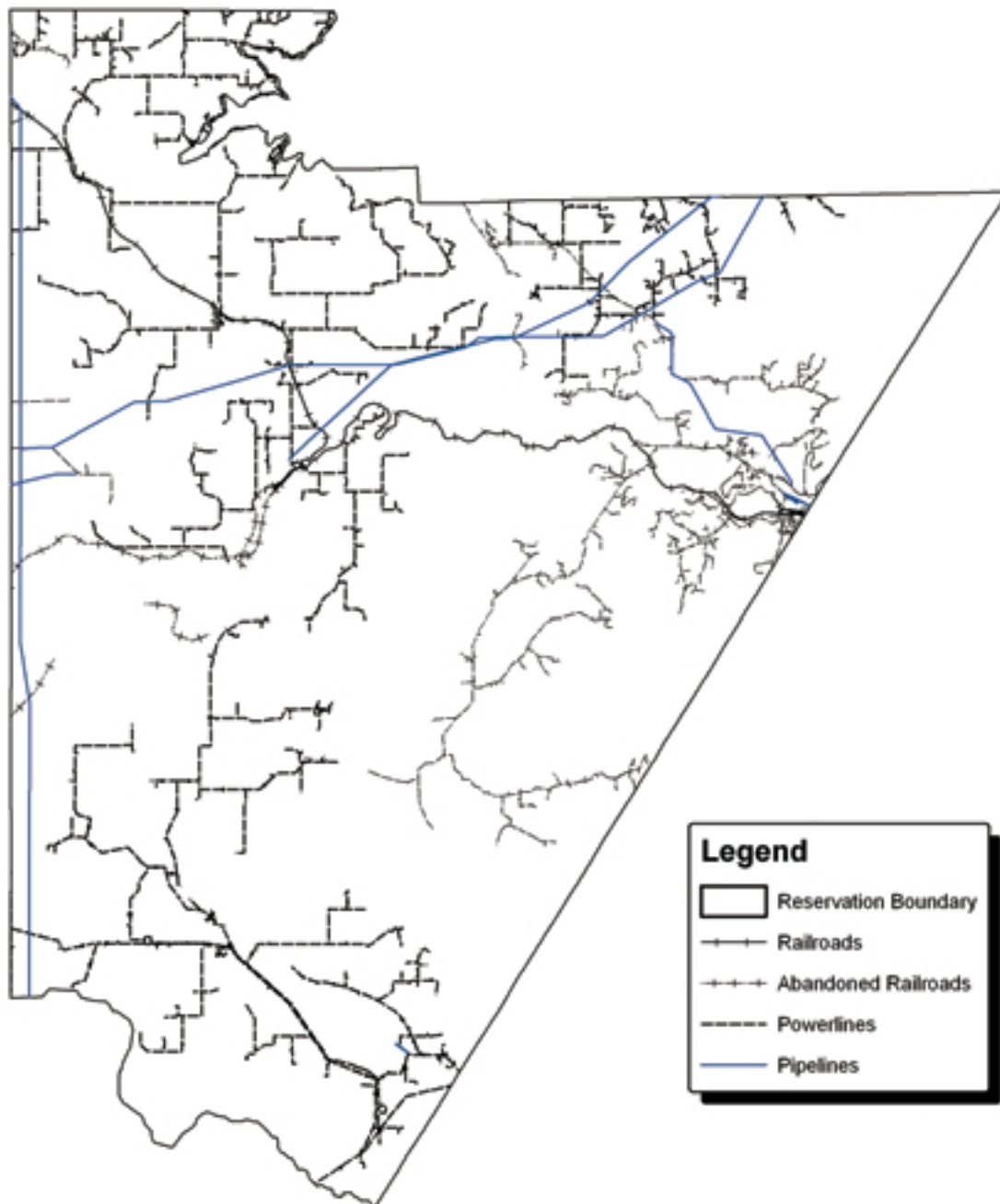
Agricultural chemicals, including herbicides, pesticides, and fertilizers are widely used across the Reservation. Approximately 28 percent of the lands on the Reservation are used for agricultural production (U.S. EPA 1997). A number of chemicals, including pesticides, herbicides, and fertilizers, are used on agricultural lands.

Chemicals are also used in forest management activities, to control vegetation along transportation and utility corridors, and for indoor and outdoor residential use.

Most commercial agricultural chemicals currently used on the Reservation are classified as slightly to moderately toxic, and most break down quickly in the environment, normally in hours to weeks.

Health effects resulting from exposure to these chemicals are generally short-term and reversible,

Figure 3.4.6.1 Utilites - Railroads, Power, and gas



The information depicted on this map is the result of digital analyses performed on a database consisting of information from a variety of governmental and other credible sources. The accuracy of the information presented is limited to the collective accuracy of the database on the date of the analysis. The information is believed accurate and reasonable efforts have been made to ensure the accuracy of the map. However, the Corps of Alaska Tribe expressly disclaims responsibility for damages or liability that may arise from use of this map. This product is the property of the Corps of Alaska Tribe and its use is thereby restricted.

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**Table 3.4.7.1 Selected agricultural pesticides commonly used on the Coeur d’Alene Reservation.**

<i>Chemical</i> <sup>1</sup>	<i>Use</i> <sup>1</sup>	<i>Crops</i> <sup>2</sup>	<i>Toxicity</i> <sup>1</sup>
Bronate	Herbicide	Wheat	Moderately toxic/Probable carcinogen
Buctril	Herbicide	Barley, Bluegrass, Wheat	Moderately toxic/Non-carcinogenic*
Chiptox	Pesticide	Oats, Barley, Wheat	Slightly toxic/Non-carcinogenic*
Curtail	Herbicide	Bluegrass, Lentils	Non-carcinogenic*/ Inconclusive**
Dimethoate	Insecticide	Lentils, Wheat	Moderately toxic/ Inconclusive***
Far-Go	Herbicide	Lentils, Barley, Wheat	Slightly toxic/Non-carcinogenic*
Harmony Extra	Pesticide	Wheat	Slightly toxic/Non-carcinogenic*
Hoelon	Herbicide	Wheat	No carcinogenicity information available
Pursuit	Herbicide	Lentils	Slightly toxic/Non-carcinogenic*
Roundup	Herbicide	Bluegrass, Wheat, Lentils, Fallow	Moderately toxic/Non-carcinogenic*
Weedar	Herbicide	Wheat	Slightly toxic (orally)/highly toxic (eye exposure)/Probable carcinogen

<sup>1</sup> Chemical information from Material Safety Data Sheets and EXTOTOXNET Pesticide Information Profiles.

<sup>2</sup> Crop information from Reservation crop reports.

\* Non-carcinogenic indicates the chemical is not a known or suspected carcinogen.

\*\* Epidemiology studies have been both positive and negative, the majority being negative.

\*\*\* Carcinogenic effects are unlikely.

and may include skin, eye, or respiratory irritation. However, long-term repeated exposure to some chemicals may potentially result in chronic health effects such as chronic dermatitis (skin rashes or increased sun sensitivity), kidney or liver effects, or reproductive effects. Two chemicals, Bronate and Weedar, are suspected carcinogens. Both these chemicals are primarily used on wheat crops, primarily in the fall.

Potential health effects for a number of the chemicals listed in Table 3.4.7.1 include:

*Bronate and Buctril* Overexposure may cause nausea, vomiting, abdominal pains, weakness, dizziness, and unsteadiness; breathing of vapors may aggravate asthma or pulmonary diseases (MSDS; Integrated Risk Information System [IRIS]).

*Chiptox* Very high acute exposures may cause slurred speech, twitching, jerking and spasms, low blood pressure, and unconsciousness (EXTOXNET).

*Far-Go* Acute effects may include eye irritation. Overexposure may produce central nervous system depression and the possibility of headache, dizziness, uncoordination, nausea, and loss of appetite and unconsciousness (MSDS).

*Roundup* Acute exposure may cause temporary eye irritation, conjunctivitis, and gastrointestinal discomfort. Ingestion of large quantities may cause hypotension and pulmonary edema. Chronic exposure may cause skin irritation (MSDS).

*Weedar* Weedar is considered a possible carcinogen (MSDS). Acute and chronic effects may include irreversible eye damage. Repeated overexposure may cause liver, kidney, gastrointestinal, and muscular effects. Inhalation of vapor, dusts, or sprays may aggravate asthma or pulmonary diseases (MSDS).

Based on exposure information from Washington State pesticide incident tracking surveys and case-by-case analysis by the Idaho Department of Agriculture, pesticide exposure is most likely to occur as a result of:

- mixing and loading of chemicals
- inappropriate application or disposal (including aerial drift)
- contact with contaminated media such as surface water, ground water, or foods

For the majority of Reservation residents, the greatest risks from commercial agricultural pesticide contamination may be from exposure to residual contamination from historically-used banned chemicals, such as DDT, which persist in the environment.

In a US Geological Survey water quality assessment conducted in the Palouse region between 1993 and 1995, none of the pesticides commonly used for dryland farming of wheat and small grains in the Palouse region were detected in ground water, but 10 were detected in surface water. A number of these pesticides, including Far-Go, Bucktril, 2,4-D-based, and MCPA-based pesticides are also used on the Reservation under similar conditions and using similar agricultural practices (Coeur d'Alene Tribe 2000b).

### **3.4.8 Recreation**

Northern Idaho, particularly the Coeur d'Alene Lake area, is one of the region's major attractions for tourism. Out of state boaters account for about one-fourth of the 20,000 boats registered in Kootenai County (Coeur d'Alene Tribe, *et al.* 1996). Visitors are drawn to the area for its unique geographical characteristics and the recreation opportunities that they provide. Visitors come from Washington, Montana, Oregon, and Canada, as well as Idaho. Table 3.4.8.1, Recreation Sites, lists some of the recreation available in Kootenai County.

**Table 3.4.8.1 Recreation Sites**

<i>Recreation Sites</i>	<i>Pumpout</i>	<i>Campgrounds</i>	<i>Public Dock</i>	<i>Boat Launch</i>	<i>Restrooms</i>	<i>Picnic Area</i>	<i>Parking</i>	<i>Hiking/Trailhead</i>	<i>Water Access Only</i>	<i>Use Level (Seasonal)</i>
Windy Bay (BLM)		X	X	X	X	X		X		HIGH
Sun Up Bay			X	X	X		X			HIGH
Rockford Bay										
Black Rock Marina	X		X	X	X		X			HIGH
Chatcolet, day use			X	X		X	X			MODERATE
Plummer Point			X	X	X	X	X			MODERATE
Harlow Point			X	X						MODERATE
Spokane Point			X	X	X					MODERATE
Fuller Landing			X	X						HIGH
Black Lake			X					X		MODERATE
Mowry State Park		X	X		X	X	X	X		HIGH
Conklin Park Marina	X			X			X			HIGH
Mary Minerva		X			X	X	X	X		MODERATE
McCroskey State Park										
Heyburn State Park	X	X	X	X	X	X	X	X		HIGH

### **Recreation Activities**

The area's recreational activities are mostly associated with the lakes, rivers, and waterways. Camping, fishing, boating (all types of water vehicles), hunting, off road vehicle use, day use, and hiking are the most popular recreation activities on the Reservation. Currently, only at the peak of the season (July-August) are there any crowding, conflicts, and user dissatisfaction.

Recreational use and development contribute to the loss of habitat and affect the natural environment. Recreation around the lakes and waterways is expected to increase due to population growth in the region. Coordination and cooperation are necessary, in addition to long-term planning, to maintain appropriate recreational activities and retention of the natural environment.

## **3.4.9 Solid and Hazardous Waste**

### **3.4.9.1: Solid Waste**

The amount of solid waste and the collection methods for the Reservation are tied together such that this data cannot be separated by type of source (such as residential versus non-residential) without a significantly more intensive effort. For instance, the amount of waste collected from the rural drop boxes in the northern part of the Reservation can be estimated, but these amounts cannot be characterized by specific source (such as residential or commercial). See Table 3.4.9.1 for

**Table 3.4.9.1 Reservation PUBLIC Dumpster Sites and Map Coordinates**

<i>Dumpster Location</i>	<i>GIS/Map Coordinates</i>	
	<i>X Coordinate</i>	<i>Y Coordinate</i>
Rockford Bay	507645.719	5261520.500
Sunup Bay Road	503055.584	5260136.500
Worley	506336.281	5250083.500
Heyburn State Park (Chatcolet)	518031.094	5246554.000
Heyburn State Park (Rocky Point)	518988.219	5244402.500
Parkline (Benewah Lake)	524035.000	5242412.000
Harrison Junction	525642.063	5249365.000
North Benewah Creek Road	524466.688	5242006.500
Plummer	513557.063	5242725.000
Windfall Pass Road	507454.781	5231548.500
Hangman Creek Road	500389.375	5226300.000
DeSmet (Seltice Rd)	503852.375	5221495.500
Sanders	516190.250	5216678.000
Moses Mountain Road	513131.219	5219067.500
Sheep Creek Road	509654.406	5218003.000
South Benewah Creek Road (Lolo Pass Rd)	505453.156	5228733.000
Old Agency, Plummer	504068.188	5239702.000
Fairfield Road	505276.594	5243240.000

Reservation dumpster sites and map coordinates as of July 2002. Likewise, there are some drop boxes that are used by off-Reservation sources, even out-of-state sources, but there is no hard data available to adjust for this amount.

An estimate of the total waste generated on the Coeur d'Alene Reservation ranges from 3,070–5,700 tons per year. A more detailed study would need to be completed in order to narrow down the range of the estimate (refer to Table 3.4.9.2 on next page).

Currently, there are few opportunities for recycling on the Coeur d'Alene Reservation. This is typical of much of the surrounding areas and is also typical of rural areas in general, but clearly more could be done locally. Recycling is an activity that benefits significantly from “economies of scale” that result from handling large volumes of material, and this is true for the waste generators (commercial and residential) as well as the companies that collect recyclable materials. This factor has handicapped previous efforts and, unfortunately, this also means that any new recycling programs are limited to those efforts that would target larger volumes of materials in order for these programs to be cost-effective.

For the alternatives that were evaluated, curbside recycling (for households) and mandatory programs appear unfeasible. Commercial programs and possibly a limited drop-off program could be feasible.



**Table 3.4.9.2 Estimate of Current Waste Quantities, Coeur d'Alene Reservation**

<i>Location or Source</i>	<i>Collection Capacity or Amount, cubic yards per year</i>	<i>Estimated Average Percent of Fullness for Rural Dumpsters</i>	<i>Estimated Density, pounds per cubic yds.</i>	<i>Estimated Amount, tons per year</i>
Benewah County, rural dumpsters	28,080	80%	100	1,123
Benewah County, additional dumpsters	4,030	80%	100	161
Benewah County, commercial collections	1,768	80%	120	85
Kootenai County, rural dumpsters	—	—	—	1,946
City of Plummer	1,612	—	500	403
City of Worley	364	—	500	91
City of St. Maries	936	—	500	237
Casino	5,250	—	130	341

Total Waste Generated = 4,387 tons per year

Waste Generation Rate = 0.68 tons (1,360 pounds) per person per year <sup>1</sup>

1360/365 = 3.72 or 3.7 pounds when rounded or 3.7 pounds per person per day

Potential Range of Waste Amount ( $\pm 30\%$ ) = 3,070 - 5,700 tons per year

Notes:

<sup>1</sup> The Waste Generation Rate was calculated using the current population figure of 6,451 people.

cy = cubic yards.

The Tribe conducted assessments of selected solid waste sites on and adjacent to the Coeur d'Alene Reservation. Site visits to selected locations occurred in August and November 2001. Table 3.4.9.3 lists the name, location, and assessment status of the sites within the project scope of work.

For the following sites, the Tribe concluded risk to human health and the environment was relatively low. Until and unless adverse environmental conditions become apparent on Reservation land in a downgradient direction from these sites, no further investigation is warranted.

- \* Little Plummer Creek Dump sites
- \* Benewah Co./St. Maries Landfill
- \* Old Plummer Landfill
- \* Old Tensed Town Dump
- \* Old Sanders Town Dump

Suggested follow-up at several sites is administrative in nature. At the following sites, we con-

**Table 3.4.9.3 Abandoned Landfill Assessment Sites**

<i>Site Name</i>	<i>Location</i>	<i>Comments</i>
DeSmet Road Dump Site*	503854.875 5222082.000	Additional assessment recommended.
Old DeSmet Town Landfill*	503738.250 5221751.500	Monitor environmental condition.
Sanders Auto Crushing Site*	514723.281 5216444.500	Additional assessment recommended.
Zurcher Mountain Auto Wrecking	502352.531 5240147.000	Additional assessment recommended.
Little Plummer Creek Dump Sites*	512761.625 5242248.000	Monitor environmental condition.
Benewah Co./St. Maries Landfill*	538476.938 5237192.000	Monitor environmental condition.
Old Plummer Town Landfill*	507283.625 5237434.000	Monitor environmental condition.
Old Tensed Town Dump	502994.094 5224663.000	Monitor environmental condition.
Old Worley West Town Dump	501593.188 5247924.000	Additional assessment recommended.
Old Worley Town Dump on Indian Cemetery Road*	506946.781 5250460.000	Additional assessment recommended.
Old Sanders Town Dump	517108.406 5218176.000	Monitor environmental condition.
Wilbur Ellis Ag-Chem at Tensed	504775.906 5223846.000	Additional assessment recommended.
Haeg Road at Mowry Road Dump	501484.188 5239147.000	Drive by. Only minor debris visible from Haeg Road.
Borrow Pit Dump North of Plummer	Map: NW1/4 SW1/4 Sec 8 T46N, R4W	No assessment attempted.
King Valley Post & Pole	Map: N1/2 Sec 35 T44N R5W	Assessment attempted but was not able to locate site.
Auto Wrecking North of Lolo Creek	Map: NE1/4 NW1/4 Sec 25 T45N R5W	No assessment attempted.
Sheep Creek Dump Site	Map: NW1/4 NW1/4 Sec 5 T43N R4W	No assessment attempted.
Conkling Road Gravel Pit Dump Site	Map: SW1/4 SE1/4 Sec 21 T47N R4W	No assessment attempted.
Windfall Pass Dump Site	Map: SE1/4 SE1/4 Sec 16 T45N R4W	No assessment attempted.

*(continued)*

**Table 3.4.9.3** (*continued*)

<i>Site Name</i>	<i>Location</i>	<i>Comments</i>
Brown Hill Dump Site	Map: NE1/4 SE1/4 Sec 14 T46N R3W	No assessment attempted.
Old Harrison Dump	Map: E1/2 NE1/4 Sec 14 T47N R3W	No assessment attempted. Kootenai Co. Plng Dept: #C-1059–01

\* Designates a site included within the six sites originally selected for assessment.

cluded risk to human health and the environment was relatively low. However, recent site activity demonstrated that inappropriate site use was still occurring.

- \* Old Worley West Town Dump
- \* Old Worley Town Dump on Indian Cemetery Road

For the following sites, we concluded that risk of a release to waters of the Reservation was high or potentially high. For these sites, there is a present and significant need for additional assessment to determine the extent of potential adverse impact.

- \* DeSmet Road Dump Site and Old DeSmet Landfill
- \* Sanders Auto Crushing Site
- \* Zurcher Mountain Auto Wrecking
- \* Wilbur Ellis Ag-Chem Warehouse

### **3.4.9.2: Hazardous Waste**

Hazardous waste is typically defined as waste material that is ignitable (i.e., burns readily), corrosive, or reactive (e.g., explosive) and may be solid, semi-solid, or liquid. Known or suspected hazardous waste sites are regulated by the Resource Conservation and Recovery Act (active sites), or the Comprehensive Environmental Response, Compensation, and Liability Act, also known as “Superfund” (inactive or abandoned sites). Hazardous wastes related to mining activities in the Coeur d’Alene Basin are not discussed in this report.

The number of identified hazardous waste generators on the Reservation is small. The federal database for tracking active hazardous waste sites includes five facilities on the Reservation that may be generators, transporters, treaters, storers, or disposers of hazardous waste. Three facilities; an auto dealership, a State Department of Lands facility, and a county landfill; are located in St. Maries. The other two facilities, one in Worley and one in Tensed, handle agricultural chemicals. A log yard facility in St. Maries has been identified as a source of hazardous wastes from wood treatment activities which may be migrating into surface or ground water (Coeur d’Alene Tribe 2000b).

### **3.4.10 *Land Use***

For the Coeur d'Alene Tribe, historic land use consisted of areas for hunting, fishing, gathering and spiritual uses. Villages were located along the shores of Coeur d'Alene Lake, Spokane River, and the St. Joe River. Trails systems throughout the Tribe's aboriginal territory were travel routes to the salmon fishing areas, the buffalo hunting areas, and routes to established areas for trading with the Kootenai, Palus, and Nez Perce (Frey and the Schitsu'umsh 2000).

Today, land use on the approximately 345,000 acre Coeur d'Alene Reservation includes hunting, fishing, gathering, Tribal spiritual uses, residential, commercial, agriculture, forestry, recreation, utility distribution, and transportation. Tribal hunting, fishing, gathering and spiritual uses of the land are increasingly limited and threatened by other uses of the land such as residential, commercial, agriculture, forestry, recreation, utilities and transportation. The Reservation boundaries overlap with Kootenai and Benewah County boundaries.

According to Tribal GIS, current land use consists of 176,021 acres of forest land, 141,671 acres of agricultural land, 2,466 acres of brush land, 2,245 acres of developed land (associated with towns on the Reservation), 608 acres of wetlands, 372 acres of grassland, and 11,088 acres of barren or unclassified lands (not including Tribal submerged lands).

### **3.4.11 *Social and Economics***

Historically, the Coeur d'Alene social organization consisted of three bands corresponding to the winter village sites. Each band comprised several extended families each functioning on their own or in alliance with each other. There were no hereditary clans, class structure, or slavery. Leadership consisted of the elected chiefs and subchiefs with no coercive or punitive powers (Frey and the Schitsu'umsh 2000).

The economics of the Tribe consisted of the accumulation of subsistence items. However, with the coming of the horse, Coeur d'Alene families regularly traveled with members from other tribes to distant hunting and fishing grounds establishing and renewing trading partnerships.

It has been estimated that the pre-settlement population of the Coeur d'Alene Tribe was approximately 5,000 (Frey and the Schitsu'umsh 2000). This population was sustained by the natural resources from a much larger land base (over 5 million acres of what is now parts of Idaho, Washington and Montana). Disease, war and other factors brought about by European settlement resulted in a precipitous decline in the native population. At its lowest, the population of the Coeur d'Alene Tribe was down to 500 people. It has currently rebounded to approximately 1922 enrolled Tribal members (Coeur d'Alene Tribe 2003b).

Populations of European descendants have increased substantially. At the larger scale, the total human population in Benewah and Kootenai counties is 117,856. This represents an increase of around 112,000 people within a portion of the land area once occupied by Coeur d'Alene people. Not only has the number of people increased, but also modern lifestyles create much greater, and long-term impacts to the environment.

The Coeur d'Alene Tribe continues to be self-governing, with a Tribal Council that answers to a constituency of Tribal members in its effort to meet their needs and perform the duties of elected

office. The Coeur d'Alene Tribe and their elected Tribal Council are committed to providing for the health and welfare of Tribal members and Reservation residents, and careful and progressive planning to sustain the Tribe's self-determination and restore its self-sufficiency.

#### **3.4.11.1: Existing Social Conditions**

The goal of the Quality of Life Sub-Group in the Tribe's EAP Assessment report was to assess and describe the impacts of twenty-five environmental concerns on the community's quality of life. During this assessment these criteria became known as the "Categories for Quality of Life." As these five categories are typically interdependent, no one category was understood as primary to or more important than the others, which is evident in the "circle diagrams" developed for each topic. The categories are:

- Economic and Subsistence
- Spiritual/Moral
- Aesthetics
- Community Well-being
- Personal Well-being

The last two categories were incorporated into the definition of quality of life to acknowledge the distinction between "community" and "personal" well-being, and that some individuals may express their "economic/subsistence," "spiritual/moral," and "aesthetic" quality of life concerns along a continuum from "community well-being" at one end to "personal well-being" at the other end. Other criteria evaluated included impacts on Tribal culture, degree of uncertainty, trends, seasonal differences in severity of impacts, impacts on future generations and fairness/equity of impacts.

Given the general lack of documented research on the community's quality of life, the sub-group elected to pursue its own primary research. Aware of the need to gauge both the "subjective" meanings often associated with the phrase "quality of life," as well as the "objective" interplay of "natural and environmental resources and economics," the sub-group sought methodologies that were both qualitative and quantitative in nature. The EAP Assessment approach relied primarily on the use of a focus group (qualitative in nature) and an economic analysis (quantitative in nature). In addition, interviewing a limited sample of community members and conducting public opinion surveys supplemented the information obtained in the focus group sessions. The results of this quality of life assessment will be used to compare and contrast the changes from implementation of the IRMP Alternatives to the categories for quality of life indicators.

#### **3.4.11.2: Existing Economic Conditions**

##### **The Economy of the Coeur d'Alene Reservation**

1. Socioeconomic Characteristics of the Entire Population of the Coeur d'Alene Reservation in the Year 2000

This section begins by describing the socioeconomic characteristics of the entire population residing on the Coeur d'Alene Reservation, combining both the 81 percent non-Indians with the 19 percent Native Americans. The 2000 Census is the source of this information.

- Between 1990 and 2000 the population of the Coeur d'Alene Reservation grew by 13.4 percent. This was a slightly slower rate of population growth than Benewah County (15.5 percent) and much slower than Kootenai County (55.7 percent). *Almost two-thirds of the Reservation population growth was associated with the more rapid growth of the Native American population. While the Native American population grew by 65 percent, the non-Indian population grew by only 5.5 percent.*<sup>1</sup> By comparison, the population of Idaho increased by 28.5 percent and the nation by 13.1 percent.
- Census data indicates that employment on the Reservation grew by 18 percent between 1990 and 2000. *The employment of Native American residents almost doubled while that of non-Indians grew by only 10 percent over that ten-year period.*
- With the impact of inflation removed, income per person and median family income both rose by about 20 percent between 1990 and 2000 on the Reservation. *The rate of increase for Native American households was much higher than for non-Indians. Native American income per person rose over 50 percent faster, median household income twice as fast, and median family income three times as fast as it did for non-Indians.* Despite this improvement, per capita income and median household income on the Reservation were only about 92 percent of the overall Idaho level. Despite the faster rate of growth of real income among the Native American residents of the Reservation, significant income gaps remain between Native American and non-Indian residents. Depending on the income measure used, Native American residents had incomes 7 to 39 percent below non-Indians.
- The poverty rate on the Reservation declined somewhat between 1990 and 2000 from 16.3 to 15.6 percent. *The poverty rate among Native American residents declined much more rapidly, by almost 30 percent, while poverty among non-Indian residents was largely unchanged.* The poverty rate on the Reservation, however, remained above the Idaho level of 11.8 percent. Poverty rates among Native American residents were significantly higher; in general twice as high.
- The largest source of employment for Reservation residents was professional services (health, education, social services), which employed 542 residents. Trade was the source of 360 jobs. Travel and entertainment-related jobs totaled 321. In contrast, all of manufacturing, including wood products, provided 268 jobs, while agriculture, forestry, and mining provided employment for 266. Government (public administration) employed 260. See Table 3.4.11.1.

1. It is possible that some of the growth indicated by comparing the 1990 and 2000 Census figures is tied to a significant under-count in 1990 and a more accurate count in 2000.



Table 3.4.11.1

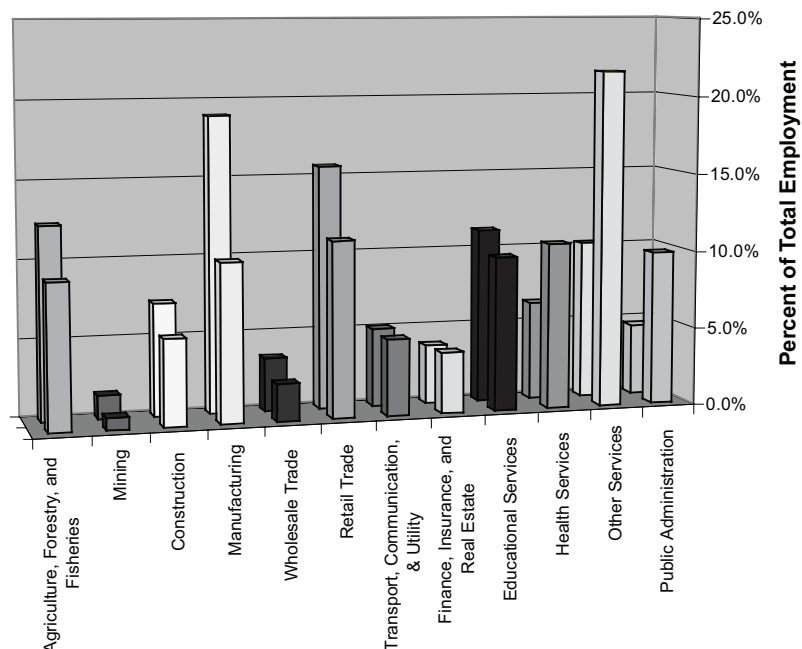
Industry of Employment, Coeur d'Alene Reservation 2000		
Industry	Number of Workers	% of All Workers
Educational, health and social services	542	20.5
Arts, entertainment, recreation, accommodation and food services	321	12.1
Retail trade	297	11.2
Manufacturing	268	10.1
Agriculture, Forestry & Mining	266	10.1
Public administration	260	9.8
Construction	146	5.5
Transportation and warehousing, and utilities	129	4.9
Professional, scientific, management, & administrative services	121	4.6
Other services (except public administration)	106	4
Finance, insurance, real estate, and rental and leasing	103	3.9
Wholesale trade	63	2.4
Information	23	0.9
Total	2645	100

Sources: 2000 Census

This structure of Reservation employment represented a significant change from 1990 when manufacturing, forestry, and agricultural activities were much more important, and services and government much less important as sources of employment. See Figure 3.4.11.1.

Figure 3.4.11.1

Change in the Industrial Structure of Employment on the Coeur d'Alene Reservation, 1990-2000



- The age structure of the Reservation population was older than that found in either the nation or Idaho. The median age on the Reservation was 38.2, five years older than in Idaho and three years older than in the nation. That older age structure is entirely due to the non-Indian population that had a median age of almost 42. *The Native American population on the Reservation is unusually young, with a median age of only 23.5; almost 10 years younger than Idaho and 12 years younger than the national population.* While 42 percent of the Native American population is under 18 on the Reservation, only 26 percent of the national population is that young, a figure close to that of the non-Indian portion of the Reservation population. Similarly, while only about 6 percent of the Native American population is 65 or over, 12.4 percent of the national population is that old, but significantly more of the non-Indian Reservation residents, 15.1 percent, are senior citizens. See Table 3.4.11.2

**Table 3.4.11.2**

<b>Age Structure of the Population, 2000</b>			
<b>Coeur d'Alene Reservation</b>			
<b>Age Group</b>	<b>All Residents</b>	<b>Native American</b>	<b>Non-Indian</b>
% under 5	7.0%	13.0%	5.6%
% under 18	28.3%	41.8%	25.2%
% under 24	35.1%	52.1%	31.1%
% 24-64	51.6%	42.0%	53.8%
% 65 and over	13.3%	5.8%	15.1%
<b>Median Age</b>	<b>38.2</b>	<b>23.5</b>	<b>41.7</b>

Source: 2000 Census

## **2. Socioeconomic Characteristics of the Native American Population of the Coeur d'Alene Reservation**

### **a. Employment**

The number of Native American residents of the Reservation who reported themselves to be employed at the time of the 2000 Census was twice that reported in the 1990 Census. A larger number of Native American residents reported being employed during 1999 and that number was also significantly larger than what was reported for 1989: 55 percent larger. The number of Native American residents reporting that they usually worked 35 or more hours per week during 1999 also increased dramatically over 1989: by 74 percent.

Despite these employment gains, Native Americans are still under-represented in the Reservation workforce. Although 19.1 percent of the population of the Reservation is Native American, only 15.2 percent of the Reservation workforce is Native American. This is due to several demographic and economic circumstances: Because the Native American population has a larger percentage of children, a small percentage of the population is working age. In addition, fewer working-age Native Americans are actually working due to a much higher unemployment rate.

While 82.7 percent of the non-Indian population is 16 years or older, only 63.1 percent of the Native American population is. Thus the “working-age” segment of the Native American population is significantly smaller. Put the other way around, the percentage of the Native American population that are young dependents is significantly larger. We would expect this to depress the percentage of the population working.

Of those Native American residents who are 16 and older, a slightly smaller percentage are employed, 50.9 percent versus 53.6 percent for non-Indians. This is entirely due to a higher unemployment rate among Native Americans who seek employment but cannot find it: 18.8 percent versus 11.6 percent for non-Indians. A larger percentage of working-age Native Americans actually seeks work than do Reservation non-Indians: 62.7 versus 60.8 percent. This is largely due to a higher labor force participation rate among Native American women than among non-Indian women: 60 versus 56 percent. See Table 3.4.11.3.

**Table 3.4.11.3**

Unemployment on the Coeur d'Alene Reservation, 2000						
	Working-age not working	Native American Seeking work not finding it*	Working-age not seeking work	Working-age not working	Non-Indian Seeking work not finding it*	Working-age not seeking work
	%	%	%	%	%	%
Male	49.9%	23.6%	34.4%	45.5%	16.5%	34.7%
Female	48.5%	14.7%	39.7%	47.3%	5.7%	44.0%
Total	49.1%	18.8%	37.3%	46.4%	11.6%	39.2%

\*The "unemployment rate."

Source: 2000 Census. Non-Indian approximated by "white."

Not only do a larger percentage of working-aged Native American residents seek work, but those Native American residents who find it are also more likely than non-Indians to work full-time, year-round. 54 percent of Native American workers fell into this category while only 47 percent of non-Indians did. This is entirely due to the fact that 65 percent of female Native American workers worked full-time, year-round, while only 37 percent of female non-Indian workers were in this category. If the seasonal character of many jobs is ignored and we only focus on whether, when working, workers usually worked 35 or more hours a week, significantly more Native American workers fell into this category than did non-Indian workers. See Table 3.4.11.4.

**Table 3.4.11.4**

Full-Time Workers, Coeur d'Alene Reservation, 2000		
	Native American	Non-Indian
Worked in 1999	520	2,784
Usually Worked 35+ hr/week	460	2,147
Worked Full-Time, Year Round	282	1,270
% Usually Worked 35+hr/week	88.5%	77.1%
% Full-Time, Year Round	54.2%	45.6%

Source: 2000 Census

The 2000 Census data released through June 2003 did not provide data on the distribution of Native American employment on the Reservation among industries and occupations. So nothing current can be said about *where* Native American residents worked or what types of jobs they held.

### Income

Median household income for Native American residents of the Reservation was about 7 percent below that for all Reservation residents. Income per Native American person, however, was almost 40 percent below the average across the entire Reservation population. These two divergent measures of Reservation income allows one to argue either that Native Americans are more or less doing as well as other residents or to argue the opposite, that Native Americans face a staggering income deficit compared to other Reservation residents. See Table 3.4.11.5.

**Table 3.4.11.5**

<b>Income Levels on the Coeur d'Alene Reservation 1999</b>			
<b>Measure of Income</b>	<b>All</b>	<b>Nat.Amer.</b>	<b>NatAmer/All</b>
Median Household Income	\$ 34,988	\$ 32,619	93.2%
Average Household Income	\$ 43,223	\$ 35,389	81.9%
Median Family Income	\$ 40,267	\$ 36,563	90.8%
Per Capita Income	\$ 16,421	\$ 10,023	61.0%

Source: 2000 Census

One important explanation of the divergence between these two income measures was discussed above. Many more of the Native American residents are children who are not of working age. When income per person is calculated, income is spread across all residents, whether they are children or retired elderly residents. When household income is calculated, the size of the household is ignored. As a result, the presence of dependents does not reduce the average or median but the presence of more than one worker can boost both measures.

Native American households were almost 30 percent larger than the average for all Reservation households in 2000: 3.4 v. 2.6 persons per household. Those additional household members are likely to be children. Native American households are much more likely to have children under 18 years old present. 71 percent of Native American families on the Reservation fell into this category while only 47 percent of all Reservation families had children present. See Table 3.4.11.6. This larger Native American household size by itself explains 21 percentage points of the 39 percentage point gap in per capita income: Average income per Native American *household* is 82 percent of the Reservation average while average income per Native American *person* is 61 percent of the Reservation average.

The remainder (about half) of the 39 percentage point gap in per capita income between Native American residents and the overall Reservation population was due to Native American households receiving fewer dollars of income. A significant part of this gap may be explained by the

**Table 3.4.11.6**

<b>Types of Households on the Coeur d'Alene Reservation, 2000</b>		
<b>Family Type</b>	<b>% of All Families</b>	<b>% of Native American Families</b>
Families with related children <18 yr	46.9%	70.1%
Married-Couple Family	81.4%	54.0%
Single-Parent Family	18.6%	41.8%
Female householder w/o husband	10.9%	31.2%
<b>Household Type</b>	<b>% of All Households</b>	<b>% of Native American Households</b>
Family Household	73.9%	80.2%
Non-Family Household	26.1%	19.8%
Single person household	21.3%	17.0%
Multi-person non-family household	4.8%	2.8%

Source: 2000 Census

greater prevalence of single-parent families, especially female-headed households, among the Native American residents. The percentage of female-headed Native American households was almost three times as large as for the Reservation as a whole. See Table 3.4.11.6. This is likely to reduce family income for two reasons: First, in such households there are fewer workers and, second, women, in general, get paid less than men.

In fact, in 2000 on the Reservation, married couples with children under 18 had a median family income of \$47,284. Female-headed households who had children under 18 present had a median family income of \$17,143, almost two-thirds lower.

The lower income for Native American households is partly tied to the fact that male full-time Native American workers have a median pay that is only 75% of what non-Indian workers get paid. On the other hand, female Native American workers actually earn 10 percent more than non-Indian women workers. For those Native Americans who work part-time or seasonally, both male and female pay is well below that of non-Indians (72% and 58% of non-Indian levels, respectively).

In addition, fewer male Native American workers work full-time year-round (41% v. 53%) but many more female Native American workers work full-time, year-round (almost twice as many, 65% v. 36%). See Table 3.4.11.7.

The lower Native American household income is also tied to the fact that a slightly larger percentage of the Native American potential workforce (those 16 and older) are *not* working 49.1% v. 46.4% for non-Indians. This is entirely due to the higher unemployment rate among Native American residents who are seeking work, 18.8% v. 11.6% for non-Indians. A larger percentage of the working-age Native American residents actually seek work, 62.7% v. 60.7% for non-Indians. While the labor force participation rate of male Native American residents is about equal to that of non-Indians, that of female Native American residents is significantly higher than non-Indians, 60.3% v. 55.9% for non-Indians.

**Table 3.4.11.7**

<b>Coeur d'Alene Reservation Median Earnings by Work Status, 1999</b>			
	Non-Indian	Native American	NatAmer/ Non-Ind
<b>Worked full-time, year-round in 1999 --</b>			
Total	\$30,719	\$25,294	82.3%
Male	\$35,369	\$26,591	75.2%
Female	\$21,906	\$24,063	109.8%
% Male workers full-time, all year	53%	41%	78.5%
%Female workers full-time, all year	36%	65%	179.7%
<b>Worked part-time or seasonal in 1999</b>			
Total	\$9,877	\$7,935	80.3%
Male	\$13,750	\$9,926	72.2%
Female	\$7,912	\$4,609	58.3%

Source: 2000 Census. "Non-Indian" approximated by "white."

Using median incomes instead of average incomes also tells a somewhat different picture. The *median* household income for Native American households is 93 percent of the median for all Reservation households, but the *average* Native American household income is only 82 percent of the Reservation average. This is largely due to the fact that while the median and average are close to one another for Native American households, the *average* household income for all residents is 24 percent higher than the *median* for all households. This suggests that a disproportionate share of aggregate income goes to upper income non-Indian households on the Reservation while income is distributed more evenly among Native American households.

The biggest differences in the distribution of income among Native American and non-Indian households are at the upper and lower ends of the distribution. The percentage of Native American households with incomes less than \$10,000 was 72 percent higher than for non-Indian households. At the upper end of the distribution, the share of Native American households with incomes in excess of \$70,000 was only about half the share of non-Indian households. See Table 3.4.11.8.

**Table 3.4.11.8**

<b>Distribution of Household Income on the Coeur d'Alene Reservation, 1999</b>			
Income Category	Percent of all Native Amer Households	Percent of all Non-Indian Households	Ratio Native Amer. to Non-Indian
<\$10K	16.2%	9.4%	1.72
\$10-20K	17.0%	16.5%	1.03
\$20-30K	14.4%	15.9%	0.91
\$30-40K	17.3%	13.7%	1.26
\$40-50K	9.7%	11.9%	0.82
\$50-60	11.3%	10.9%	1.03
\$60-75	6.3%	7.7%	0.81
\$70-100	4.7%	7.4%	0.64
\$100+	3.1%	6.7%	0.47

Source: 2000 Census



Poverty rates on the Reservation were twice as high among Native Americans as among non-Indians for all age groups except for those under 5 and over 75<sup>2</sup>. As a result, while making up only 19 percent of the total population, Native Americans make up 34 percent of those living in poverty. See Table 3.4.11.9.

**Table 3.4.11.9**

Poverty Rates by Age Group: Coeur d'Alene Reservation, 1999				
Age Group	Native Amer.	Non-Indian	All	NatAmer/Non-Indian
All Ages	28.5%	12.7%	15.6%	2.2
Under 5 years	41.9%	25.5%	31.3%	1.6
5 years	13.3%	25.5%	22.6%	0.5
6 to 11 years	33.3%	16.6%	19.9%	2.0
12 to 17 years	29.9%	14.7%	18.7%	2.0
18 to 64 years	27.2%	11.5%	14.2%	2.4
65 to 74 years	10.8%	4.1%	4.8%	2.6
75 years and over	0.0%	16.2%	14.9%	0.0

2000 Census

The educational attainments of Native Americans on the Reservation is more “polar” than that of non-Indians: A smaller percentage of Native Americans have graduated from high school but a larger percentage have some college education (but fewer actually have a bachelors degree or better). See Table 3.4.11.10.

**Table 3.4.11.10**

Educational Attainment on the Coeur d'Alene Reservation		
Educational Level	% of Age 25+	
	Native Amer.	Non-Indian
Not a High School Graduate	26.3%	13.9%
High School Graduate	25.1%	37.0%
Some College	42.9%	31.6%
Bachelor's degree or better	5.7%	17.5%

Source: 2000 Census

2. The lower reported poverty rates for these groups may be due to errors in the data.

The Native American population of the Reservation showed more mobility between 1995-2000 than the non-Indian residents. While a third (32.6%) of Native Americans had moved their residence across county lines, only about a fifth (21.5%) of non-Indians had. Of these, 19 percent of Native Americans had moved to the Reservation from a different state while 14.7 percent of non-Indians had moved across state lines.

### **c. The Economic Role of The Coeur d'Alene Tribal Government<sup>3</sup>**

The Coeur d'Alene Tribal Government plays a very important role in the Reservation's economy. Tribal employment associated with managing the Reservation's natural resources and the flow of lease payments from agricultural and forest lands to the Tribe and Tribal members is a major source of employment and income.

Between 1995 and 1997 timber stumpage, agricultural leases, and crop sales brought an average of \$1.3 million into the Tribal general fund, providing the funds for a fifth to a quarter of the general fund expenditures. The Tribe also receives numerous contracts and grants to manage the Reservation's natural resources. Between 1995 and 1997 these averaged \$1.9 million, representing almost 30 percent of the Tribe's Special Fund. The sum of these two types of natural resource-related incomes to the Tribe was \$3.2 million annually.

The employment directly associated with these budgets is significant. The Natural Resource Department employed 64 people in 1998. The natural resource income flowing into the general fund supports other jobs. If a quarter of the Tribal administration jobs outside of natural resources are supported by natural resource funds, another 24 jobs can be attributed to these funds for a total of 88 jobs. The Coeur d'Alene Tribal Government estimates that two-thirds of Tribal administrative employment is held by Native Americans and 45 percent by Coeur d'Alene Tribal members.<sup>4</sup> These percentages would suggest that natural resource income is responsible for 60 jobs for Native Americans and 27 jobs for Tribal members. Clearly this economic connection with the Reservation's natural resource base is more important than the direct employment in mills and on farms.

In addition to this economic connection through Tribal employment, individual Tribal members also receive agricultural lease and timber stumpage payments from their individual allotments that are held in trust. In 1997 almost \$5 million in crops were produced on allotted lands.<sup>5</sup> A third of this or about \$1.7 million flows directly to individual Tribal members or members of other tribes who have shares in allotments on the Coeur d'Alene Reservation. In addition, another \$775,000 in stumpage payments on timber sold from allotted lands is paid to individual Tribal members each

3. This section is taken from a report prepared by Dr. Thomas Power in 1999 for the Coeur d'Alene Tribe's Environmental Action Plan Project entitled "The Importance of Natural and Environmental Resources in the Economy of the Coeur d'Alene Reservation."

4. Confidential employment information.

5. The Tribal Farm is not included in these totals. It is assumed that income from that enterprise flows directly into the general fund or is reported as part of the revenue of the enterprise itself.

year.<sup>6</sup> In addition per capita payments to Tribal members are supported by revenues from the Tribal business operations. Those include both the Tribal casino and revenues flowing from the sale of Tribally-owned natural resources.<sup>7</sup> All of these payments to Tribal members do not, of course, flow only to those living on the Reservation. The Coeur d'Alene Tribe estimates that approximately 47 percent of Tribal members reside off of the Reservation. Approximately 875 out of 1,875 Tribal members live off of the Reservation and approximately 1000 live on the Reservation.<sup>8</sup>

It is important to note that not all of the revenues flowing to the Tribe as a result of its management of the Reservation's natural resources are tied to the harvest or extraction of commercial resources. Many of the grants received by the Natural Resource Department are associated with managing non-commercial, environmental resources such as wildlife, wetlands, water quality, recreation, and other aspects of environmental quality. With the U.S. Supreme Court's recent official acknowledgment of Tribal ownership and responsibility for the management of the lower third of Coeur d'Alene Lake and parts of the St. Joe River, these environmental management responsibilities of the Tribal government will only expand. In addition, those Tribal departments responsible for the management of trust lands are not focused exclusively on the flow of commodities. The forestry program, for instance, is not focused solely on the harvest of trees and the maximization of revenue from trust lands. Its overall purpose is the long-term protection and management of the forestlands for the whole set of values associated with the forests. The management of the agricultural lands also has an environmental component.

2000 Census data is not yet available on Native American employment in different occupations and industries on the Reservation. But the importance of Tribal government as a source of employment for Native Americans on the Reservation was confirmed by the 1990 Census which estimated that 40 percent of Native American employment on the Reservation was in professional services and public administration. Only 25 percent of Other American employment was in these fields; only 24 percent of total employment in Benewah County was in these fields.

The draft 1998 Comprehensive Plan's estimates of employment on the Reservation also confirm the importance of employment related to Tribal government activities. It estimated the total employment created by the Tribe, directly and indirectly, to be over 500. With the growth in Casino employment to 438 in 1998, the total employment directly created by the Tribe was over 700. That represented 40 percent of the total employment on the Reservation. Over 60 percent of these Tribal-generated positions were estimated to be filled by Native Americans.<sup>9</sup>

6. This is the average over the 1992-1998 period and is based on 90 percent of the timber sold from allotted lands. During 1998 it was much higher, \$1.4 million. In 1993 it was only about \$45,000. The data is from the Tribal Forestry Department.<sup>7</sup> In 1994, for instance, it was natural resource revenues rather than gaming revenues that supported the per capita payments.

8. Coeur d'Alene Tribe Enrollment Office 2003; personal communication with Richard Mullen of the Tribal Enrollment Office 2003

9. Tables II, III, and IV of the Employment and Labor Force Characteristics chapter of the 1998 Draft Comprehensive Plan adjusted to use the most recent tribal employment data: an additional 229 tribal employees (438 Casino employees rather than 245 and 64 Natural Resource employees rather than 28).

The importance of Tribal government programs as a source of skilled employment is also reflected in the occupational structure of Reservation employment. Table 3.4.11.11 below summarizes the occupational data reported in the 1990 Census for the Coeur d'Alene Reservation, which is used here in the absence of similar 2000 Census data.

**Table 3.4.11.11**

<b>Occupations of Coeur d'Alene Reservation Workers, 1990 Census</b>				
	Coeur d'Alene Reservation		Benewah Co.	Kootenai Co.
	Native American	Other American	Total	Total
Executive, Admin, Manager, Professional, Technical	18.5%	19.3%	17.9%	38.4%
Sales, Administrative Support, Clerical, Protective & Other Services	50.0%	31.0%	32.0%	41.4%
Farming and Forestry	8.0%	13.1%	10.8%	3.7%
Craft, Repair, Operators, Assemblers, Transportation & Moving	18.5%	30.5%	31.9%	24.2%
Handlers, Cleaners, Laborers	5.0%	5.6%	6.5%	3.9%

Note that Native Americans on the Reservation were reported to be about as numerous in the executive, administrative, managerial, professional, and technical categories as others on the Reservation. In addition, the Native American representation in these higher skilled categories was above that for Benewah County as a whole. The greater shift towards higher-level services in the Coeur d'Alene area is clear in the much higher percentage of its workforce in these categories. The other differences in the Native American occupational structure on the Reservation are also likely to be tied to the importance of Tribal government programs. Native Americans on the Reservation are much more likely to be in the “white collar” jobs of administrative support, clerical, sales, protective and other service jobs than other Reservation workers. Similarly, Native Americans on the Reservation are less likely to be in the blue collar, farming, and forestry jobs.

The relative importance of Tribal government as a source of employment for Native Americans on the Reservation may be looked upon by some as unbalanced and insupportable over the long run because government employment is looked upon as, in some sense, less “real” or less economic. That view, however, ignores the role of Tribal government in managing the Reservation’s landscape, natural resources, environmental, and social quality on which the entire population of the Reservation relies. Native Americans make up only about 19 percent of the total Reservation population.<sup>10</sup> The Tribal government can be seen as providing services that are important to a total population that is five times the Native American population. In that perspective, the

10. 2000 Census.

size of Tribal government programs and the employment they provide to Native Americans do not appear to be disproportionately large.

#### **d. Changes in Economic Conditions on the Reservation: 1990-2000**

Table 3.4.11.12 shows the changes that have taken place in various measures of the economic conditions on the Coeur d'Alene Reservation between 1990 and 2000.

**Table 3.4.11.12**

Changes In Economic Conditions on the Coeur d'Alene Reservation, 1990-2000								
Economic Measure	Native American		Non-Indian*		Nat Amer/Non-Indian		Percent Change	
	1990	2000	1990	2000	1990	2000	1990-2000	
							Nat Amer	Non-Indian*
Income Measures (\$ values in constant 2000 \$s)								
Per Capita Income	\$7,597	\$10,023	\$13,900	\$16,421	0.55	0.61	31.9%	18.1%
Average Household Income	\$30,903	\$33,778		\$43,187		0.78	9.3%	
Median Household Income	\$23,280	\$32,610	\$28,907	\$34,988	0.81	0.93	40.1%	21.0%
Median Family Income	\$22,947	\$36,563	\$33,100	\$40,267	0.69	0.91	59.3%	21.7%
Poverty Rate	40.0%	28.5%	12.7%	12.7%	3.16	2.24	-28.8%	0.2%
Educational Attainment, age 25+								
% High School Graduate	26.1%	25.1%	36.7%	37.0%	0.71	0.68	-3.8%	0.8%
% Some College	39.1%	42.9%	30.7%	31.6%	1.27	1.36	9.7%	2.9%
% Bachelor Degree or higher	5.2%	5.7%	12.5%	17.5%	0.42	0.33	9.6%	40.0%
Employmnet Measures								
Number employed at time of Census	200	402	2,035	2,243	0.10	0.18	101.0%	10.2%
Number employed during previous year	335	520	2,617	2,797	0.13	0.19	55.2%	6.9%
Usually worked 35+ hours/week	264	460	1,948	2,147	0.14	0.21	74.2%	10.2%
Population Measures								
Number of Residents	755	1251	5023	5300	0.15	0.24	65.7%	5.5%

\*The average and median income figures are for all residents, not just non-Indians.

Sources: 1990 and 2000 Census

In general these data show substantial improvement in the economic conditions faced by all residents but especially by Native American residents over the last ten years. Some of those improvements are listed below:

- \* After adjusting for inflation, per capita income grew by almost a third for Native American residents, closing the gap relative to non-Indians modestly from 45 to 39 percent. Median family income grew even faster, by almost 60 percent, closing the income gap from 31 to 9 percent.
- \* The poverty rate for Native American households declined from 40 to 29 percent. Instead of the rate being over three times that for non-Indians, it declined to about twice the rate for non-Indians.
- \* Educational attainment of Native American residents improved by about 10 percent for both those with some college and for college graduates. Non-Indians with bachelor and advanced degrees, however, surged ahead of Native American residents.
- \* Employment for Native American residents doubled and those working 35 hours or more a week increased by almost 75 percent. As a result, instead of Native American residents

representing about an eleventh of the workers on the Reservation, they now represent about a sixth of all workers.

- \* The Native American population grew by two-thirds while the non-Indian population grew by only about 5 percent. As a result, Native American residents went from being about one in eight of Reservation residents to being about one in five.



## Chapter 4

# Environmental Consequences

### 4.0 Introduction

This chapter describes the environmental consequences, or potential impacts, on the natural, Tribal cultural and human environment on the Coeur d'Alene Reservation from implementation of the alternatives considered in this Draft Programmatic Environmental Impact Statement (DPEIS). The topics discussed are the same as those described in Chapter 3, Affected Environment.

For each topic, the impact analysis follows the same general approach. First, the regulations and policies that guide impact assessment are identified, and specific impact thresholds for intensity of impacts are documented. A study area, or area of impact analysis, is also specified for each topic and impact duration definitions (short-term, long-term) are established for many of the resource categories. Impacts are then identified and assessed based on these definitions and criteria, a review of relevant scientific literature, previously prepared environmental documents, especially the Coeur d'Alene Tribe's Environmental Action Plan (EAP) Assessment of Environmental Concerns on and near the Coeur d'Alene Reservation report (2000), and the best professional judgment of Interdisciplinary Team resource specialists.

#### *Direct and Indirect Effects*

Impacts are described in general terms and are qualified as short-term and long-term, adverse or beneficial, as appropriate. Impacts may also be described as direct or indirect. Direct impacts are caused by an action and occur at the same time and place as the action. Indirect impacts are caused by an action and occur later in time or farther removed from the area, but are reasonably foreseeable. Cumulative impacts are also discussed, per National Environmental Policy Act (NEPA) requirements, and the specific method used for cumulative impact assessment is described below.

#### *Cumulative Effects*

The Council on Environmental Quality (CEQ) regulations for implementing NEPA requires assessment of cumulative effects in the decision-making process for federal projects. Cumulative effects are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative effects are considered for both the No Action and the action alternatives. Cumulative effects in this document are determined by combining the effects of the alternative with other past, present, and reasonably foreseeable future actions. Therefore, it is necessary to

identify other past, ongoing, or reasonably foreseeable future actions on the Reservation and in the surrounding landscape.

### ***Past to Present***

Biodiversity or ecological integrity changes over time and habitats and associated populations are lost, reduced or displaced by climate, ice, water, and competition. Landscape ecology warns that the parts are less stable than the whole or what is true at one level may not be true on other levels. For instance, the loss of species and habitat in a specific area from predator-prey activities is not an indication that the species is in decline. Species interactions that tend to be unstable, non-equilibrium, or even chaotic are constrained by the slower interactions that characterize larger systems (Odum 1985). However, in nature change is constant and forces of nature, herbivore-plant interactions, and predator-prey activities tend to be cyclical and may lead to diversity rather than extinction, altering plant communities and affecting ecosystem function. So where have we been and where are we going? What has happened to create the existing landscape conditions on the Reservation lands?

### **Past**

Changing climates affected the distribution and composition of plant species indigenous to Reservation forests, shrubland, grassland, and woodland ecosystems. Paleobotanical data describe major changes in vegetation and vegetation patterns on the north Idaho ecosystems in the last 20,000 years. The premanagement era is the basis for describing the vegetation structure, composition, and patterns. Primary disturbances (fire, grazing, insects, disease) that modified the vegetation are related to successional processes and pathways induced by these natural disturbances. These disturbances are not considered destructive even though they altered plant communities and affect ecosystem function.

The vegetational shifts during the last 20,000, 10,000, or 1,000 years are not unusual. No vegetation on earth has escaped the repeated stress of glacial climates and interglacial adjustments or the short, sharp climatic shifts during each period (Johnson, et. al 1994). With each episode, species displaced by climate, ice, water, and competition responded through growth, migration, selection, or faced local extinction. At various intervals and in different places, species repeatedly abandoned and then reclaimed the same terrain, but not always with the same associates. The lands on and around the Reservation have changed dramatically since 13,000 Before Present (BP) when most of the area was open pioneer treeless vegetation. During the next few thousand years mixed conifer forest invaded, established and declined. From 10,000 to 8,000 BP xeric (dry) grasslands maximized the area giving way to mesic (moderately moist) grassland with ponderosa pine and Douglas-fir encroachment. From 4,500 to 3,000 BP there was minimum grassland and maximum forest expansion into former grassland, and the beginning of recent conditions of climate and vegetation (Johnson et. al 1994).

On the temporal scale of humans, vegetation communities may seem predictable. On this scale, vegetation history can be explained by observed succession and climax communities. The ideal

stable cycles returning to the natural state are just a few photos in the album of change for the landscapes of the Reservation.

### **Present**

Effects of cows, plows, development, and alien weeds have increased the temporal scale adding several additional photos to the album, still leaving room for short-term predictability, with no necessary appreciation for the longer view. Short-term observations provide few analogs for the magnitude and extent of past and potential vegetation change. Change is continual and change is unpredictable. How we contribute to that change is key to assessing cumulative effects.

There have been dramatic changes in the landscape and watersheds of the Coeur d'Alene River Basin and ancestral lands of the Coeur d'Alene Tribe. Forests, riparian areas, and wetlands have been converted to croplands and pastures. Water has been withdrawn for agricultural and domestic uses. Over 1,700 miles of highway, gravel and dirt roads have been constructed. Communities have been established and contributed their share of impacts to the system. Shoreline development has contributed to the loss of fish habitats through fragmentation, and habitat degradation. After more than a century of active land management, the various ecosystems and plant communities of the Reservation and aboriginal territory are in need of nurturing restoration from the human population. Some of the existing major cumulative impacts on the Reservation that have been identified by the Coeur d'Alene Tribe (Coeur d'Alene Tribe 2000b) are listed below:

### ***Conversion of forested lands to agricultural and other systems:***

- \* Approximately 114,400 acres of forested lands have been cleared for agricultural and other uses.
- \* 70,000 acres out of 135,828 acres of farmland are classified as having highly erodible soils—these can lose up to 5 tons per acre per year of soil.
- \* Approximately 80% of the total estimated wetlands on the Reservation (~20,000 acres) have been converted to agricultural and other uses.
- \* Current farming practices rely heavily on the use of synthetically produced fertilizers, herbicides, and pesticides to increase yields, and control weeds, insects, and rodents. Chemicals are also used on forestlands, and for home use on the Reservation. DDT was applied on the Reservation and it may persist in the environment.
- \* The forests on the Reservation no longer resemble the forests which existed prior to European settlement. “Old Growth” forest on the Reservation has been practically eliminated.
- \* The old growth, multi-aged, open grown forests dominated by ponderosa pine, white pine, western larch, and Douglas-fir, have been replaced with cropland, buildings, highways and roads, and forests which are much younger, denser, and dominated by smaller more shade tolerant and fire prone species.



DeSmet Second School

***Displacement of plant and animal species:***

- \* Animals and fish important to the Tribe have been affected by the construction of dams on the Columbia River and Spokane Rivers, disturbance by development and roads, competition with non-native species and habitat loss and alteration.
- \* Animal and plant species used by the Tribe such as deer, moose, elk, grouse, camas, water potato, huckleberry, and others have been greatly impacted and mostly decreased by land use changes.
- \* An estimated 189 of non-native plant and animal species have been introduced to Kootenai and Benewah Counties, 34 known as noxious weeds.
- \* Loss of habitat components for fish and wildlife has caused a reduction in many species and the loss of some aquatic species (Chinook and steelhead salmon). Fish species have been severely impacted on all Reservation streams and the lake. For example, bull trout is listed as a threatened species and cutthroat trout was proposed for listing under the Endangered Species Act as recently as 1999.
- \* 17 non-native fish species have been introduced to the lake and Reservation streams.
- \* Biodiversity of plants and animals has been reduced.

## ***Human Population***

- \* The production and consumption of energy on and near the Coeur d'Alene Reservation have contributed to degraded air quality and the disappearance of salmon in the Hangman Creek watershed
- \* In the last 150 years a number of hydroelectric dams have been constructed on the Columbia and Spokane Rivers. The Grand Coulee Dam, constructed in 1941, completely blocks anadromous fish migration to the Hangman Creek Watershed. Population growth, and increased energy consumption in the region are partly responsible for these changes.
- \* It has been estimated that the pre-settlement population of the Coeur d'Alene Tribe was approximately 3,000 to 5,000 (U.S. Forest Service 1997b; Frey 2000). This population was sustained by the natural resources from a much larger land base (several million acres of what is now parts of Idaho, Washington and Montana).
- \* Prior to settlement the Coeur d'Alene people relied on a trail network for foot and horse travel. Since the 1850's, an extensive network of roads has slowly been constructed on the Reservation. Tribal Geographic Information Systems data estimates that today there are a total of 1,736 miles of road on the Reservation (2003).

## ***Future Foreseeable***

Other future foreseeable actions with the potential to have a cumulative effect in conjunction with this project include the following:

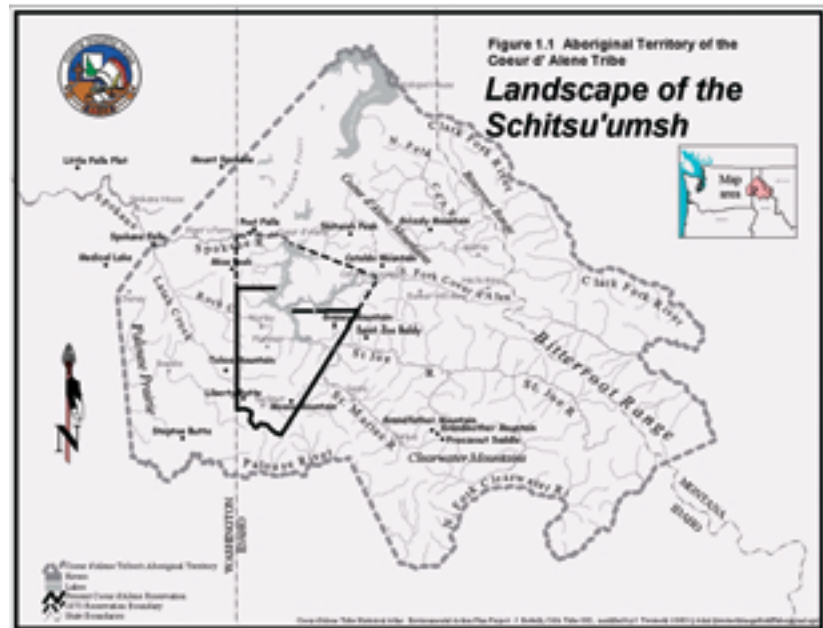
- \* EPA Coeur d'Alene Basin Remediation—(not addressed by this DPEIS).
- \* Tribal, Federal and State Transportation expansion, especially expansion of Highway 95 from 2-lanes to 4-lanes from Fighting Creek to Worley.
- \* Infrastructure expansion in Plummer, Worley, and St. Maries.
- \* Casino expansion.
- \* Watershed restoration projects for water quality and fisheries.
- \* Timber harvest on Tribal and non-Tribal lands.
- \* Agriculture burning and sedimentation.
- \* Relicensing for hydropower (FERC)—(not addressed by this DPEIS).
- \* New recreation-related development.
- \* New housing development, especially in the undeveloped areas.
- \* New commercial and industrial business development.

One of the reasons the Tribe is in the process of developing an Integrated Resource Management Plan is to address these cumulative effects. Good planning is a primary mitigation strategy for the Tribe in combating cumulative effects. In addition, an implementation and monitoring plan is included in Appendix F.



## 4.1 Landscape (Aboriginal Territory and Reservation)

The scope of the analysis for the Landscape includes the Coeur d'Alene Reservation lands and the aboriginal territory which is over 5,000,000 acres stretching from Lake Pend Oreille in the north extending along the Bitterroot range in Montana in the east to the Palouse and North Fork of the Clearwater in the south to Steptoe Butte and up to just east of Spokane Falls in the West.



### *Regulations and Policy*

- \* At the landscape level all applicable federal policies and procedures would need to be implemented when affecting changes in the natural resource environment or changes in biological integrity. At the Reservation level additional Tribal regulations and policies would apply. See Chapter 1, Table 1.5 and Appendix D for details.

### *Methodology*

The assessment of impacts for the Landscape resource category includes the application of the concepts contained in the Alternatives, including the No Action Alternative, on the landscape and evaluating the changed conditions that would affect biological diversity. Available information was obtained through Interdisciplinary Team meetings, existing literature, existing spatial data, and an understanding of the past and present uses of the landscape. All of these sources were used to compare and contrast the differing effects on the landscape of each Alternative. The areas of analysis for this topic included the extent of the aboriginal territory. The impacts of each alternative are described using the impact assessment and impact duration definitions contained below using the following indicators.

### *Indicators:*

- \* Habitat loss, fragmentation, and native species decline.

### *Impact Assessment*

Negligible	Changes in biodiversity including habitat loss, fragmentation, and species decline would not be measurable, with no effect on native species populations.
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	Any effects would be small scale, and no species of special concern would be affected.
Minor	Changes in biodiversity including habitat loss, fragmentation, and species decline would be measurable, with small and localized effects to a relatively minor portion of any species population.
Moderate	Changes in biodiversity including habitat loss, fragmentation, and species decline would be readily apparent, with effects to a sizeable segment of the species' population over a relatively large area.
Major	Changes in biodiversity including habitat loss, fragmentation, and species decline would have a considerable long-term effect and affect a relatively large area in and out of the aboriginal territory. Species of special concern could be affected. Reclamation success could not be guaranteed.

### ***Impact Duration Definition:***

Short-term	Recovers in less than three years from the action.
Long-term	Takes more than three years to recover from the action.

### ***Impacts of Alternative A—No Action***

Without an IRMP in place, impacts to the aboriginal territory and Reservation would be likely to include at least those impacts associated with continuance of current management practices. Changes in biodiversity including habitat loss, fragmentation, and species decline would be readily apparent, with effects to a sizeable segment of the species' population over a relatively large area from the current rate of infrastructure, suburban, and recreational development. The Tribe would still be active in the management decisions through the consultation process, but would not have identified areas of concern and areas of potential preservation or restoration. A major, long-term impact is expected when considering current management direction, such as continued increases in growth in Kootenai and Benewah counties, and recreational related expansion. These trends are expected to continue throughout the aboriginal territory. The Tribe would actively participate in land management decisions but would not have a plan for the Reservation in place to offer recommendations for changes in land management decisions.

### ***Impacts of Alternative B—Preferred Alternative***

With implementation of the Preferred Alternative, the Tribe would take steps to develop a program to become more actively involved in resource-based decisions across the aboriginal territory. Recommendations would encourage retaining ecological structure, components and integrity. Continued growth and development is expected but with implementation of the Preferred Alternative, development on the Reservation would be encouraged to be compatible with the IRMP

and retention of landscape function, continuity, and biological diversity. Implementation of the Preferred Alternative would result in moderate long term impacts to the biodiversity across the aboriginal territory based on current growth trends and a more active role of the Tribe in developing an understanding of landscape components needed to preserve biological diversity across the landscape.

### ***Impacts of Alternative C—Conservation Alternative***

With implementation of Alternative C, the Tribe would develop a more active program to conserve resources in the aboriginal territory. The Tribe would discourage growth in the aboriginal territory unless it retained ecological structure consistent with conservation of biodiversity across the landscape. Continued growth and development is expected but with implementation of Alternative C there would be a greater Tribal emphasis on retention of landscape function, continuity, and biological diversity across the landscape, especially on the Reservation. Implementation of Alternative C would result in minor long-term impacts to the biodiversity across the aboriginal territory based on a more active role of the Tribe.

### ***Impacts of Alternative D—Growth Alternative***

With implementation of Alternative D, management on Reservation lands would not limit the extent of growth and development except where in conflict with current ecological and cultural values. When viewed in context with peripheral lands there would be less need to monitor and plan growth in the aboriginal territory. The focus of retention of ecological structure consistent with the development direction of Alternative D would decrease on Reservation lands when compared with other alternatives, and there would be less emphasis on conservation in the aboriginal territory as well. Continued growth and development would be the focus of this Alternative. Implementation of Alternative D would result in major long term impacts to the biodiversity across the aboriginal territory based on a management strategy more focused on growth and development.

### ***Cumulative Impacts***

When viewed in context with other past, present and future foreseeable activities outlined in Section 4.0, Cumulative Effects, Alternative D would contribute to the largest degree to long-term loss of biological diversity across the aboriginal territory based on the focus of development and growth. Alternative A would follow D in having a large adverse affect on biological diversity. Alternatives B and C would follow alternative A in degree of impacts, respectively. Regardless of the implementation of any alternative, growth and development is expected to continue to varying degrees and contribute to the loss of biological diversity at the landscape level. The cumulative effect is inherent but to differing degrees spatially and temporally based on the implementation of each alternative. At the Reservation level, Alternative C protects biological diversity the most. Alternative B doesn't protect biological diversity as much as Alternative C but protects it more than Alternatives A and D, respectively.

### ***Mitigation and Monitoring***

Mitigation to offset impacts to the landscape would be preservation or restoration of non-developed lands that would contribute to the overall goal of maintaining a high level of biological diversity.

The Tribe would be responsible for monitoring projects within the Reservation and across the aboriginal territory based on implementation of one of the Alternatives. The Tribe would work to actively participate in the planning, consultation, and implementation of projects and mitigation to the degree appropriate based on Alternative selection.

### ***Summary of Impacts***

Alternative D would have the greatest long-term adverse impacts on landscape function and continuity based on the Alternative's focus on growth and development. Alternative B would have greater adverse impacts than Alternative C but less than Alternative D. Alternative A would have less adverse impacts than Alternative D but more than Alternatives B and C.

## **4.2 Culture (Aboriginal Territory and Reservation)**

The Cultural Environmental Consequences section is divided into two subsections: Tribal Culture and Subsistence, Subsection 4.2.1, describes the impacts on Coeur d'Alene Tribal Culture, and the lifestyle that is maintained based on that culture. Subsection 4.2.2 discusses the laws and regulations directing federal agencies to locate, identify, evaluate, preserve, protect and manage cultural resources significant to the heritage and history of the area, including sacred sites and traditional cultural properties. The scope of the cultural resource assessment is the whole of the aboriginal territory.

### ***4.2.1: Tribal Culture and Subsistence***

This subsection describes the impact of the alternatives on the Coeur d'Alene Tribe's ability to retain Tribal cultural subsistence activities throughout the Reservation and aboriginal territory. The yearly subsistence cycle of the *Schitsu'umsh* in which roots, berries, fish, and game are gathered or hunted is very deeply a part of the cultural heritage of the Tribe.

### **Regulations and Policy**

- \* Antiquities Act of 1906
- \* Archaeological and Historic Preservation Act of 1974
- \* American Indian Religious Freedom Act of 1978
- \* Archaeological Resources Protection Act of 1979
- \* National Historic Preservation Act of 1966
- \* Executive Order 13007, Indian Sacred Sites, 1996
- \* Native American Graves Protection and Repatriation Act of 1990

## Methodology

Certain important questions about Native American culture and history can only be answered by gathering information about the cultural content and context of cultural resources. Questions about the Coeur d'Alene Tribe's identity and heritage have the potential to be partially addressed through ethnographic resources. As defined by the U.S. Bureau of Indian Affairs, an ethnographic resource is a site, structure, object, landscape, or natural resource feature assigned traditional, legendary, religious, subsistence, or other significance in the cultural system of a group traditionally associated with it. For purposes of analyzing potential impacts to ethnographic resources, the thresholds of change for the intensity of an impact are defined below.

## Indicators:

- \* The alteration of resource conditions related to the Tribe's subsistence activities, cultural practices and beliefs.

## Impact Assessment

Negligible	<i>Negligible impact</i> —impact(s) would be non-existent or barely perceptible and would neither alter resource conditions related to subsistence, nor alter the relationship between the resources and the Tribe's body of practices and beliefs.
Minor	<i>Adverse impact</i> —impact(s) would be slight and noticeable, but would neither appreciably alter resource conditions related to subsistence nor alter the relationship between the resources and the Tribe's body of practices and beliefs.  <i>Beneficial impact</i> —impact(s) would increase the ability of the Tribe to continue subsistence and cultural practices or beliefs.
Moderate	<i>Adverse impact</i> —impact(s) would be apparent and would alter resource conditions, interfering with subsistence and the relationship between the resources and the Tribe's practices and beliefs, even though the Tribe's practices and beliefs would survive.  <i>Beneficial impact</i> —impact(s) would facilitate and increase the ability of the Tribe to continue subsistence activities and cultural practices or beliefs.
Major	<i>Adverse impact</i> —impact(s) would alter resource conditions, preventing the Tribe from practicing many subsistence activities. The effect of the relationship between the resources and the Tribe's body of practices and beliefs would be to the extent that the survival of the Tribe's practices and/or beliefs would be jeopardized.



Youth Tipi Camp, 1986, DeSmet

***Beneficial impact***—impact(s) would encourage, support, and lead to the expansion and preservation of the Tribe’s ability to continue subsistence activities and cultural practices or beliefs.

**Impact Duration Definition:**

- |            |   |
|------------|---|
| Short-term | Recovery would be within 10 years.                        |
| Long-term  | Recovery would be greater than 10 years or irretrievable. |

**Impacts of Alternative A—No Action**

Continuation of current management practices based on current trends across the landscape would result in a major adverse impact to Tribal Culture and Subsistence. Without an IRMP to guide management and land use allocation, the opportunities for hunting, fishing, and gathering would decrease long-term. Culturally sensitive and ecologically necessary habitats and components would continue to be modified impacting the opportunity to practice subsistence and cultural activities across the aboriginal territory. A major, long-term impact is expected if Alternative A is implemented in an IRMP.



### **Impacts of Alternative B—Preferred Alternative**

Under Alternative B, culturally sensitive and ecologically necessary habitats and components would also continue to be modified, impacting the ability for subsistence across the aboriginal territory. However, under Alternative B, greater emphasis would be devoted to resource conservation, carrying capacities and restoration of these ecological and cultural components. This would decrease the adverse impacts on subsistence and the Tribe's ability to carry on cultural practices and beliefs compared to Alternative A, No Action. A moderate long-term impact is expected if Alternative B is implemented in an IRMP.

### **Impacts of Alternative C—Conservation Alternative**

Alternative C would have the greatest emphasis devoted to resource conservation and restoration of ecological and cultural landscape components. Under Alternative C, culturally sensitive and ecologically necessary habitats and components would still be modified but the adverse impacts on subsistence and the Tribe's ability to carry on cultural practices and beliefs would be minor due to the emphasis of Alternative C on this resource category across the landscape. A minor long-term impact is expected if Alternative C is implemented in an IRMP.

### **Impacts of Alternative D—Growth Alternative**

Under Alternative D, culturally sensitive and ecologically necessary habitats and components would be modified at a faster rate, impacting the ability for subsistence across the aboriginal territory. Under Alternative D, greater emphasis would be devoted to development and growth and less to carrying capacities, conservation and restoration of ecological and cultural components. This would increase the adverse impacts on subsistence and the Tribe's ability to carry on cultural practices and beliefs. A major long-term impact is expected if Alternative D is implemented in an IRMP.

### **Cumulative Impacts**

When viewed in context with other past, ongoing, planned, and future foreseeable activities outlined in Section 4, Alternative D would contribute the highest cumulative adverse impacts to subsistence and the Tribe's ability to carry on cultural practices and beliefs. Implementation of this Alternative and other past, present and future activities would compound the major long-term cumulative loss of subsistence and the ability to carry on Tribal cultural practices and beliefs throughout the aboriginal territory. Alternatives B and C would follow Alternative A in degree of impacts, based on the less incremental degree they would contribute cumulatively. Regardless of the implementation of any alternative, growth and development is expected to continue to impact subsistence and the Tribe's ability to carry on cultural practices and beliefs. The cumulative effect is present in all alternatives but to differing degrees spatially and temporally based on the implementation of a given alternative.



## **Mitigation and Monitoring**

Mitigation to offset impacts to subsistence and the Tribe's ability to carry on cultural practices and beliefs would be conservation or restoration of non-developed lands that would contribute to the overall goal of maintaining these ecological and culturally significant areas.

The Tribe would be responsible for monitoring changes in land use and growth and development plans in areas designated for retention of subsistence capability and the Tribe's ability to carry on cultural practices and beliefs. Active participation in these projects and planned mitigation would extend into the aboriginal territory.

## **Summary of Impacts**

Alternatives A and D would have major long-term adverse impacts on subsistence and cultural practices and beliefs, based on the alternatives' tolerance for growth and development. Alternative B would have a moderate long-term adverse impact and Alternative C would have a minor long-term adverse impact based upon the approach to planned growth and conservation of resources in each of the alternatives.

### ***4.2.2: Cultural Resources***

In this DPEIS, impacts to cultural resources are described in terms of type, context, duration, and intensity, which is consistent with the regulations of the Council on Environmental Quality (CEQ) that implement the National Environmental Policy Act (NEPA). These impact analyses are intended, however, to comply with the requirements of both NEPA and §106 of the National Historic Preservation Act (NHPA). In accordance with the Advisory Council on Historic Preservation's regulations implementing §106 of the NHPA (36 CFR Part 800, Protection of Historic Properties), impacts to cultural resources are identified and evaluated by (1) determining the area of potential effects; (2) identifying cultural resources present in the area of potential effects that are either listed in or eligible to be listed in the National Register of Historic Places; (3) applying the criteria of adverse effects to affected cultural resources either listed in or eligible to be listed in the National Register; and (4) considering ways to avoid, minimize, or mitigate adverse effects.

Under the Advisory Council's regulations, a determination of either *adverse effect* or *no adverse effect* must also be made for affected cultural resources eligible for the National Register. An *adverse effect* occurs whenever an impact alters, directly or indirectly, any characteristic of a cultural resource that qualifies it for inclusion in the National Register (e.g., diminishing the integrity of the resource's location, design, setting, materials, workmanship, feeling, or association). Adverse effects also include reasonably foreseeable effects caused by the preferred alternative that would occur later in time, be farther removed in distance, or be cumulative (36 CFR Part 800.5, *Assessment of Adverse Effects*). A determination of *no adverse effect* means there is an effect, but the effect would not diminish in any way the characteristics of the cultural resource that qualify it for inclusion in the National Register.

## Regulations and Policy

- \* National Historic Preservation Act of 1966
- \* Antiquities Act of 1906
- \* Archaeological and Historic Preservation Act of 1974
- \* American Indian Religious Freedom Act of 1978
- \* Archaeological Resources Protection Act of 1979
- \* Executive Order 13007, Indian Sacred Sites, 1996
- \* Coeur d'Alene Tribe Cultural Resources Policy (in draft)

## Methodology

In order for an archaeological resource to be eligible for the National Register of Historic Places, it must meet one or more of the following criteria of significance: A) be associated with events that have made a significant contribution to the broad patterns of our history; B) be associated with the lives of persons significant in our past; C) embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction; D) have yielded, or may be likely to yield, information important in prehistory or history. In addition, the archaeological resource must possess integrity of location, design, setting, materials, workmanship, feeling and association (*National Register Bulletin, Guidelines for Evaluating and Registering Archeological Properties*).

Some places of traditional cultural use may be eligible for inclusion in the National Register of Historic Places as traditional cultural properties (TCPs) because of their association with cultural practices or beliefs of a living community that (a) are rooted in that group's history and (b) are important in maintaining the continuing cultural identity of the group.

For purposes of analyzing impacts to archaeological resources either listed in or eligible to be listed in the National Register at the broad scale, the thresholds of change for intensity of an impact are defined below. Indicators for the assessment are changes in land use and compliance with the National Historic Preservation Act. It must be noted that any site-specific activity that will be implemented would require cultural inventories and a site-specific assessment to meet the intent of the National Historic Preservation Act. This subsection assesses how the Alternatives in this NEPA document might affect cultural resources at the programmatic level.

## Indicators:

- \* Changes in land use, expansion of development, and loss of structure or place.
- \* Compliance with the National Historic Preservation Act.

## Impact Assessment

Negligible	Impacts are barely measurable without any perceptible consequences, either adverse or beneficial, to archaeological resources. Impacts would not alter re-
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source conditions such as traditional access or site preservation. For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Minor**      ***Adverse impact***—disturbance of a site(s) results in little, if any, loss of significance or integrity and the National Register eligibility of the site(s) are unaffected. Impacts would not appreciably alter resource conditions such as cultural access or site preservation. For purposes of Section 106, the determination of effect would be *no adverse effect*.

***Beneficial impact***—maintenance and preservation of a site(s). Impacts would allow access to and/or accommodate the Tribe’s cultural practices and beliefs. For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Moderate**      ***Adverse impact***—disturbance of a site(s) does not diminish the significance or integrity of the site(s) to the extent that its National Register eligibility is jeopardized. Some interference with cultural access and site preservation would occur. For purposes of Section 106, the determination of effect would be *adverse effect*.

***Beneficial impact***—stabilization of a site(s). Impacts would facilitate cultural access and/or accommodate the Tribe’s practices or beliefs. For purposes of Section 106, the determination of effect would be *no adverse effect*.

**Major**      ***Adverse impact***—disturbance of a site(s) diminishes the significance and integrity of the site(s) to the extent that it is no longer eligible to be listed in the National Register. The action or management would block or greatly affect cultural access and site preservation. For purposes of Section 106, the determination of effect would be *adverse effect*.

***Beneficial impact***—active intervention to preserve a site(s). Impacts would encourage cultural access and/or accommodate the Tribe’s practices or beliefs. For purposes of Section 106, the determination of effect would be *no adverse effect*.

### **Impacts of Alternative A—No Action**

Continuation of current management practices based on current trends across the landscape would potentially result in an adverse impact on Cultural Resources and/or Tribal Cultural Properties. Without an IRMP to guide management and land use allocation, cultural resources may be impacted by unplanned and increased growth and development. Culturally sensitive and ecologically necessary habitats and components would continue to be modified impacting the opportunity to practice subsistence and cultural activities across the aboriginal territory. An adverse effect is expected if Alternative A is implemented in an IRMP.

### **Impacts of Alternative B—Preferred Alternative**

Under Alternative B, culturally sensitive and ecologically necessary habitats and components would also continue to be modified, potentially adversely impacting Cultural Resources and Tribal Cultural Properties. However, under Alternative B, greater emphasis would be assigned to planned development in specified locations, resource conservation, carrying capacities and restoration of ecological and cultural components. This would decrease the potential for adverse impacts on Cultural Resources and Tribal Cultural Properties and the Tribe's ability to carry on traditional practices and beliefs compared to Alternative A, No Action. A minor adverse impact is expected to result if Alternative B is implemented in an IRMP. For purposes of Section 106, there would be no adverse effect.

### **Impacts of Alternative C—Conservation Alternative**

Alternative C would have the greatest emphasis on planned development in specified locations, resource conservation and restoration of ecological and cultural landscape components. Under Alternative C, Cultural Resources and Tribal Cultural Properties would still potentially be modified but the adverse impacts on them would be minor due to the emphasis of Alternative C on cultural resources across the landscape. A negligible adverse impact is expected to result if Alternative C is implemented in an IRMP. For purposes of Section 106, there would be no adverse effect.

### **Impacts of Alternative D—Growth Alternative**

Under Alternative D, culturally sensitive and ecologically necessary habitats and components would be modified at a faster rate, potentially impacting Cultural Resources and Tribal Cultural Properties. Under Alternative D, greater emphasis would be devoted to development and growth and less to protecting cultural and ecological components on the landscape. This would increase the potential for adverse impacts on Cultural Resources and Tribal Cultural Properties. An adverse effect is expected if Alternative D is implemented in an IRMP.

### **Cumulative Impacts**

When viewed in context with other past, ongoing, planned, and future foreseeable activities outlined in Section 4, Alternatives A and D would potentially have an adverse impact and contribute the highest cumulative adverse impacts to Cultural Resources and Tribal Cultural Properties. Implementation of Alternatives A and D and other past, present and future activities would compound the major long-term cumulative loss of Cultural Resources and Tribal Cultural Properties throughout the aboriginal territory. Alternatives B and C would mitigate cumulative impacts and have no adverse effect on Cultural Resources and Tribal Cultural Properties due to the approach of the Alternatives. Regardless of the implementation of any alternative, growth and development is expected to continue to impact subsistence and the Tribe's ability to carry on traditional practices and beliefs.

### **Mitigation and Monitoring**

Implementation of any activity associated with the Alternatives would have to be assessed at the site-specific level to determine type and extent of disturbance to Tribal Cultural Properties or National Register eligibility. Mitigation to offset impacts to Cultural Resources and Tribal Cultural Properties would be conservation or restoration of non-developed lands that would contribute to the overall goal of maintaining these ecological and culturally significant areas. Mitigation and monitoring would be implemented on a project-by-project basis to comply with the National Historic Preservation Act.

### **Summary of Impacts**

Alternatives A and D would be expected to have an adverse effect on Cultural Resources and Tribal Cultural Properties. Alternatives B and C would be expected to have no adverse effects on cultural resources.

## **4.3 Natural Environment (Reservation)**

The scope of the analysis for the Natural Environment is the lands and resources within the Coeur d'Alene Reservation. However, some resource area boundaries extend beyond the political boundaries into watersheds for aquatic and hydrology and beyond the watersheds for wildlife and air. Management direction will be implemented at the Reservation boundary with the exception of those resources that extend beyond. In those cases suggestions as to the type and extent of management will be addressed as appropriate.

### **4.3.1: Air**

The scope of this assessment is indoor and outdoor air quality on the Reservation and the airshed within which the Reservation resides.

### **Regulations and Policy**

- \* Clean Air Act

### **Methodology**

The assessment of impacts uses the general methodology described above and the resource specific information provided below. Available information was obtained through Interdisciplinary Team meetings and relevant literature. The area of analysis for this topic included Kootenai and Benewah Counties and the wilderness and local communities within an approximate 50-mile radius. Indicators for Air Quality are changes in sulphur dioxide (SO<sub>2</sub>), nitrogen oxide (NO<sub>x</sub>), particulate matter (PM), ozone and lead that would exceed federal standards and proximity to Class I airsheds (highest air quality category, pristine). The intensity of effects and impact duration are described in the analysis below using the following criteria and definitions.

**Indicators:**

- \* Compliance with the Clean Air Act.

**Impact Assessment:**

Negligible	Changes in air quality would be below or at the level of detection. If detected, impacts would be considered slight and short-term, with no perceptible consequences to the viewshed or area health.
Minor	Changes in air quality would be measurable, although the changes would be small, short-term, and effects would be localized.
Moderate	Changes in air quality would be readily apparent and would have sufficient consequences to the viewshed or area health to cause concern, although impacts would be relatively local.
Major	Changes in air quality would be obvious, would have substantial consequences to the viewshed or area health, and be noticed regionally.

**Impact Duration**

Short-Term	Recovers in 7 days or less.
Long-Term	Takes more than 7 days to recover.

**Impacts of Alternative A—No Action**

Alternative A would allow for growth and development to continue at current rates without guidance from an IRMP. Unchecked growth will result in more people living in scattered rural areas on the Reservation and lead to more car trips per day. With an increasing number of people traveling the roads and the expansion of Highway 95 from 2-lanes into 4-lanes from Fighting Creek to Worley, beginning in 2004, it is expected that air quality will be impacted. It is expected that Alternative A would result in moderate, long-term adverse impacts to air quality.

**Impacts of Alternative B—Preferred Alternative**

Alternative B would work to contain growth, allowing for a modest amount of development in designated areas. The Highway 95 expansion would still occur. Conservation of resources would be a high priority in Alternative B. Alternative B is expected to result in only minor, long-term adverse impacts to air quality.

**Impacts of Alternative C—Conservation Alternative**

Alternative C has the greatest emphasis on resource conservation and makes the greatest effort to contain growth and development. However, the Highway 95 expansion would still occur. Alternative C is expected to result in negligible, long-term adverse impacts to air quality.



### **Impacts of Alternative D—Growth Alternative**

Alternative D would encourage growth and development in large areas of the Reservation, especially along the Highway 95 corridor, which is being expanded. There would also be little focus on resource conservation and increased recreation around Coeur d’Alene Lake. Alternative D is expected to result in major, long-term adverse impacts to air quality.

### **Cumulative Impacts**

Currently, air quality on the Reservation is thought to meet U.S. EPA’s Air Quality Standards for a Class II Airshed (not pristine but good air quality). This is based upon incomplete, local data. Alternatives A and D would add moderate to major adverse cumulative impacts to the air quality on the Reservation, respectively, while Alternatives B and C would add minor and negligible adverse cumulative impacts, respectively, to the air quality on the Reservation.

### **Mitigation and Monitoring**

All Alternatives would have to comply with U.S. EPA’s Air Quality Standards and projects that could affect air quality would be assessed on a case-by-case basis. Monitoring of air quality would continue through the Tribe’s Natural Resource Department in the Air Quality and Environmental Programs Office/Environmental Health section.

### **Summary of Impacts**

Alternative C is expected to have negligible adverse impacts on air quality, Alternative B is expected to have minor adverse impacts, Alternative A is expected to have moderate adverse impacts and Alternative D is expected to have major adverse impacts to air quality on the Reservation.

### **4.3.2: Biodiversity**

The assessment for biodiversity includes the Reservation.

### **Regulations and Policy**

- \* National Indian Forest Resources Management Act
- \* Indian Land Consolidation Act
- \* Resource Conservation and Recovery Act
- \* Soil and Water Resources Conservation Act of 1977
- \* Endangered Species Act

### **Methodology**

The analysis of impacts uses the general methodology described at the beginning of this Chapter and the resource specific information provided below. Available information was obtained through Interdisciplinary Team meetings and relevant literature from the Coeur d’Alene Tribe’s EAP Assessment (2000). The intensity of effects and impact duration are described in the analysis below using the following criteria and definitions.

**Indicators:**

- \* The loss of habitat, habitat fragmentation, and migration corridor loss of connectivity from agriculture, forestry, recreation, human population growth, roads and other human impacts.

**Impact Assessment**

Negligible	Impacts are considered short-term. Planning for species diversity and habitat connectivity would allow for maximization of biodiversity relative to pre-settlement conditions.
Minor	Impacts would be distinguishable by amount of loss in species diversity and habitat connectivity. High biodiversity would exist across the landscape compared to pre-settlement conditions but losses would occur based on development needs and growth. Impacts would be long-term.
Moderate	Impacts would be visible on the landscape and in relationship to species diversity and habitat connectivity. Moderate biodiversity from pre-settlement conditions could be achieved but loss would be considered long-term from growth and development.
Major	Impacts would be clearly recognizable on the landscape. Species would be lost as well as key habitat areas. Even a low biodiversity index compared to pre-settlement conditions would be difficult to maintain. Growth and development changes would reduce potential for increases in biodiversity across the landscape over the long term.

**Impact Duration Definition:**

Short-term Recovery would be within 3 to 5 years

Long-term Recovery would be greater than 60 years

**Impacts of Alternative A—No Action**

Alternative A would allow for growth and development to continue at current rates without guidance from an IRMP. Agricultural lands would continue to be modified and forestry practices unchecked across the landscape. Recreation expansion would continue to dominate areas around Coeur d'Alene Lake. Population growth will continue and require additional infrastructure including roads for transportation. Alternative A is expected to have a moderate impact on biodiversity over the long-term based on this analysis and the analysis in the EAP Assessment, depending on rate of the growth, especially around Coeur d'Alene Lake.

### **Impacts of Alternative B—Preferred Alternative**

Alternative B would plan for growth and development to occur in suitable areas based on guidance from the IRMP. The IRMP would encourage the conversion of selected agricultural lands back to a more pre-settlement composition. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan while working with other federal and private entities across the landscape to preserve diversity. Recreation expansion would be discouraged in some areas around Coeur d'Alene Lake. Recreation growth would be considerate of plant and animal diversity and maintenance. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative B, new road construction and expansion would be discouraged in most areas that are unsuitable or in conflict with biodiversity goals and objectives of retention. Alternative B is expected to have a minor impact on biodiversity over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Impacts of Alternative C—Conservation Alternative**

Alternative C would work toward containing growth and development except in areas considered suitable based on guidance from the IRMP. This IRMP alternative would encourage and promote a larger degree of conversion of agricultural lands back to a more pre-settlement composition. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan while working with other federal and private entities across the landscape to preserve diversity. Recreation expansion would be discouraged in most of the area around Coeur d'Alene Lake. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative C, new road construction and expansion would be discouraged in all areas that are unsuitable or in conflict with biodiversity goals and objectives of retention. Alternative C is expected to have a negligible impact on biodiversity over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Impacts of Alternative D—Growth Alternative**

Alternative D would plan for growth and development to occur in all suitable areas based on guidance from the IRMP. This Alternative would not actively encourage the conversion of agricultural lands back to a more pre-settlement composition. This Alternative would encourage growth and development to meet greater economic returns. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan on Tribal lands and coordination would continue with other federal and private entities across the landscape to retain elements of diversity, but not as a priority. Recreation expansion would be encouraged in most areas around Coeur d'Alene Lake. Recreation growth would be considerate of plant and animal diversity and maintenance where it was a priority over growth. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative C, new road construction and expansion would be encouraged in all areas to accommodate growth and expansion. Priorities of biodiversity would be secondary to growth and development. Alternative D is expected to have a major impact on biodiversity over the long-term



Wapato, Hawley's Landing

based on this analysis and the analysis in the EAP Assessment.

### **Cumulative Impacts**

Changes in land use and corresponding loss of habitat over the past 120 or more years have already had moderate to major impacts across the regional landscape. Regardless of the IRMP Alternative selected, losses of habitat, habitat fragmentation, and migration corridor loss of connectivity from agriculture, forestry, recreation, human population growth, and roads is expected based on projects already in the planning phase (Section 4.0). The intensity and duration of impacts would be different for all Alternatives. Alternatives A and D would be expected to add a moderate to major cumulative impact on the Reservation, respectively, if all elements of the Alternatives were implemented. Alternatives B and C are expected to contribute a minor to negligible cumulative impact, respectively, if all elements of the Alternatives are implemented.

The assessment is based on past development and the expansion of growth described in the analysis of Alternatives A and D, as well as the recommendations to plan for and contain growth and development in suitable areas described in Alternatives B and C.

### **Mitigation and Monitoring**

The Tribe, in cooperation with other entities and individuals, will work to establish biodiversity strongholds, potential areas for restoration and enhancement, and strategies to contain growth and development. The implementation and monitoring plan is located in Appendix F.

### **Summary of Impacts**

Alternative A would have a moderate impact on biodiversity based on current trends and without the IRMP for guidance. Alternatives B and C would have a minor to negligible impact on biodiversity, respectively, based on the two Alternatives' degree of containing growth and development. Alternative D would have a major impact on biodiversity based on its focus on development and growth.

### **4.3.3: *Coeur d'Alene Lake***

Coeur d'Alene Lake has tremendous cultural significance to the Tribe. The analysis in this Chapter describes the anticipated impacts of each of the IRMP DPEIS management alternatives on Coeur

d’Alene Lake. The Integrated Resource Management Plan that will be written based upon the outcome of the NEPA process will assist the Tribe in managing Coeur d’Alene Lake for future generations of Coeur d’Alene Tribal members and the public. Other Tribal plans, such as the Tribe’s Comprehensive Plan (in draft) will also assist in managing Coeur d’Alene Lake.

## **Regulations and Policy**

- \* Boating on Tribal Waters Ordinance
- \* Encroachments Ordinance
- \* On-Reservation Hunting, Fishing and Trapping Ordinance
- \* Clean Water Act (including the National Pollution Discharge Elimination System)
- \* Resource Conservation and Recovery Act
- \* Soil and Water Resources Conservation Act of 1977
- \* Endangered Species Act

## **Methodology**

The analysis of impacts uses the general methodology described at the beginning of this Chapter and the resource specific information provided below. Available information was obtained through Interdisciplinary Team meetings and relevant literature from the Coeur d’Alene Tribe’s EAP Assessment (2000). The intensity of impacts and duration of impacts are described in the analysis below using the following criteria and definitions.

## **Indicators:**

- \* Changes in quality of habitat for native species.
- \* Changes in water quality parameters.
- \* Number of encroachments on Tribal waters.
- \* Trends in recreational use of the Lake.
- \* Ability to conduct Tribal cultural and subsistence activities on the Lake.

## **Impact Assessment**

Negligible	Little or no change to the Lake indicators would occur over the short- and long-term.
Minor	Adverse impacts to the Lake would result from slight and noticeable changes but would not alter or affect the Lake and Lake indicators on a large scale over the short- and long-term.
Moderate	Impacts to the Lake would be readily apparent so that changes in the Lake would occur on a scale that, if continued, would begin to threaten the ecological and cultural integrity of the Lake over the short- and long-term.

Major	Impacts would be great and would change the Lake on a scale that would prevent its continued use by present and future generations for Tribal cultural and subsistence uses. Ecological processes would be severely damaged for the short- and long-term.
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**Impact Duration Definition:**

Short-term 20 years or less.

Long-term More than 20 years.

**Impacts of Alternative A—No Action**

Alternative A would allow for development to occur anywhere on the Reservation at current rates without guidance from an IRMP. Development around Coeur d’Alene Lake would be expected to increase based upon growth trends. Agriculture, road building, forestry practices and other impacts would be expected to lead to sediment and nutrient loading in Coeur d’Alene Lake. Increased population would lead to more stormwater runoff and greater point source discharges to the tributaries of Coeur d’Alene Lake. With this growth and development being largely unplanned and unmitigated, Alternative A would be expected to result in moderate impacts to Coeur d’Alene Lake in the short- and long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative B—Preferred Alternative**

Alternative B would plan for growth and development to occur in suitable areas based on guidance from the IRMP. Development would be discouraged in many areas around Coeur d’Alene Lake. The IRMP would encourage the conversion of selected agricultural lands back to a more pre-settlement composition and decrease erosion into Coeur d’Alene Lake. The Tribe would encourage the application of standards and guidelines from the Tribal Forest Management Plan while working with other federal and private entities across the landscape to preserve diversity. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative B, new road construction and expansion would be discouraged in most areas that are unsuitable or in conflict with biodiversity goals and objectives of habitat retention. Alternative B is expected to result in minor impacts on Coeur d’Alene Lake over the short- and long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative C—Conservation Alternative**

Alternative C would work hardest to contain growth to areas considered suitable based on guidance from the IRMP. This IRMP alternative would encourage and promote a larger degree of conversion of agricultural lands back to a more pre-settlement composition. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan while working with other federal and private entities across the landscape to preserve diversity. Development





The Trail of the Coeur d'Alenes—Rails to Trails

would be discouraged in most areas around Coeur d'Alene Lake. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative C, new road construction and expansion would be discouraged in all areas that are unsuitable or in conflict with biodiversity goals and objectives of habitat retention. Alternative C is expected to have a minor impact on Coeur d'Alene Lake over the short- and long-term based on this analysis and the analysis in the EAP Assessment.

#### **Impacts of Alternative D—Growth Alternative**

Alternative D would plan for growth and development to occur in all suitable areas based on guidance from the IRMP. Recreation expansion and development would be accommodated in most areas around Coeur d'Alene Lake. This Alternative would not actively encourage the conversion of agricultural lands back to a more pre-settlement composition. This Alternative would encourage growth and development to meet greater economic returns. The Tribe would less actively encourage application of standards and guidelines from the Tribal Forest Management Plan and co-

ordination would continue with other federal and private entities across the landscape to retain elements of diversity, but not as a priority. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative D, new road construction and expansion would be allowed in all areas to accommodate growth and expansion. Maintenance of native species biodiversity would be a secondary priority to growth and development. Alternative D is expected to result in major impacts to Coeur d'Alene Lake over the short- and long-term based on this analysis and the analysis in the EAP Assessment.

### **Cumulative Impacts**

Over the past 120 or more years, major cumulative impacts to Coeur d'Alene Lake have occurred from a myriad of human impacts. Regardless of the Alternative selected, some impacts to Coeur d'Alene Lake are expected due to the increases in population that are occurring. The intensity of effects would be different for all Alternatives. Alternative A would be expected to add a moderate short- and long-term cumulative impact to Coeur d'Alene Lake if all elements of the Alternative were implemented. Alternatives B and C would be expected to add a minor cumulative impact to Coeur d'Alene Lake if all elements of the Alternatives are implemented. Alternative D would have major impacts on Coeur d'Alene Lake if all elements of the alternative were implemented. The assessment of the alternatives is based on expected population growth, potential land use changes and the amount of planning and mitigation described in the analysis.

### **Mitigation and Monitoring**

The Tribal Natural Lake Management Department will monitor the implementation of any plan or process that affects Coeur d'Alene Lake and will coordinate with the Tribe's Natural Resource Department for consistency with the goals of the IRMP. Any alternative selected will have a management strategy to monitor and maintain an active role in any action or plan for Coeur d'Alene Lake. The implementation and monitoring plan is located in Appendix F.

### **Summary of Impacts**

Alternative A would have a moderate impact in the short- and long-term, while Alternative D would have a major impact on Coeur d'Alene Lake in the short- and long-term. Alternatives B and C would have a moderate and minor impact on Coeur d'Alene Lake, respectively.

#### ***4.3.4: Fire***

Fire is being assessed at the Reservation scale. Fire as a natural process in the ecosystem and fire use in agricultural and forestry practices are included in the discussion.

### **Regulations and Policy**

- \* 1995 Federal Wildland Fire Management Policy (updated in 2001)
- \* Tribal Forest Management Plan and Fire Management Plan

## Methodology

The assessment of impacts uses the general methodology described above and the resource specific information provided below. Available information was obtained through Interdisciplinary Team meetings and relevant literature from the EAP Assessment. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

### Indicators:

- \* Changes or loss of habitat from fire and fire suppression.
- \* Changes in agricultural lands from continued burning.

### Impact Assessment

Negligible	Changes in vegetative communities from fire or fire suppression would not be measurable, with no effect on native species populations. Any impacts would be small scale, and no species of special concern would be affected.
Minor	Changes in vegetative communities or species populations from fire or fire suppression would be measurable, with small and localized impacts to a relatively minor portion of any species population.
Moderate	Changes in vegetative communities or species populations from fire or fire suppression would be readily apparent, with impacts to a sizeable segment of the species' population over a relatively large area.
Major	Changes to vegetative communities on species populations would have a considerable long-term impact and affect a relatively large area inside and out of the Reservation. Species of special concern could be affected. Reclamation success could not be guaranteed.

### Impact Duration Definition:

- Short-term Recovers in less than 3 years.
- Long-term Takes more than 3 years to recover.

### Impacts of Alternatives A, B, C and D

The Fire goals for all of the IRMP management alternatives are the same. Impacts from the alternatives may vary somewhat due to differences in the amount of land that is utilized for agricultural and forestry activities over the next 20 to 100 years.

All lands on the Reservation are subject to the impacts of fire or lack thereof. For example, the wildfires of 1910 burned through much of the forestland in the eastern mountains of the Reser-

vation. There have been many other smaller wildfires within the past century as well. Fire is also currently used as a forest management tool to dispose of logging debris (slash) and prepare harvested sites for reforestation. Annual acreage burned in this type for forest management is highly variable and dependent on the other activities of the various forest owners. Fire is used as a management tool on agricultural lands as well and the acreage burned on these lands also varies from year to year. The Tribe used fire as a management tool long before timber and agricultural management occurred on the Reservation and continues to use fire as a tool to manage Tribal cultural and subsistence species and to reduce fire danger.

For all alternatives these management goals would continue to varying degrees. In the absence of a catastrophic unplanned ignition, a minor short-term impact to changes or loss of habitat for all alternatives is expected from prescribed burning and ecosystem restoration burning, as described in the Tribal Forest Management Plan and the Tribal Fire Management Plan and consistent with the goals in the IRMP DPEIS alternatives.

### **Cumulative Impacts**

Cumulatively the use of fire in conjunction with other fire related ecosystem restoration activities in the area would add a minor short-term impact to potential loss or changes in habitat and changes on Reservation lands.

### **Mitigation and Monitoring**

The implementation of the Tribal Forest Management Plan and the Tribal Fire Management Plan, coupled with working with other forested landowners to use fire for restoration purposes, will be monitored through the Tribal Forest Program.

### **Summary of Impacts**

All Alternatives without the event of an unplanned catastrophic fire would have a minor short-term impact on loss or changes in habitat and changes on Reservation lands from burning.

### **4.3.5: Fish**

There have been dramatic changes in the landscape and watersheds of the Coeur d'Alene River Basin and ancestral lands of the Coeur d'Alene Tribe since European settlement. Forestlands, grasslands, and wetlands have been converted to other land uses or altered by human development. Erosion of the landscape has been widespread and excessive. Sediment has been delivered to stream channels. Limited livestock grazing occurs in most of the watersheds and along streams. Watersheds and channels have been de-stabilized. Water has been withdrawn for agricultural and domestic uses. Old growth forests have been virtually eliminated.

### **Regulations and Policy**

- \* National Environmental Policy Act
- \* Endangered Species Act

- \* Clean Water Act
- \* Northwest Power Act
- \* National Historic Preservation Act

## **Methodology**

The assessment of impacts uses the general methodology described above and the resource specific information provided below. Available information was obtained through Interdisciplinary Team meetings and relevant literature from the EAP Assessment. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

## **Indicators:**

- \* Loss of naturally producing populations of native fish.
- \* Change (increase or decrease) in abundance and distribution of native fish.
- \* Watershed road density.
- \* Riparian road index.
- \* Percent altered riparian vegetation.
- \* Equivalent clearcut area.

## **Impact Assessment**

Negligible	There would be no observable or measurable impacts on native fish species, their habitats, or natural processes sustaining them. Impacts would be well within the range of natural fluctuations.
Minor	Impacts on native fish would be detectable, but would not be expected to be outside the natural range of variability and would not be expected to have any long-term effects on native species, their habitats, or the natural processes sustaining them. Species viability and genetic variability would remain stable over the long term. Occasional responses to disturbance by some individuals would not interfere with feeding, reproduction, or population dynamics. Ecosystem process and species habitat could have minor disruptions, but no long-term impacts that would be considered outside natural variations.
Moderate	Impacts on native fish would be detectable and could be expected to be outside the natural range of variability and to have long-term effects on native species, their habitats, or the natural processes sustaining them. However, species viability and genetic variability would remain stable over the long term. Frequent responses to disturbance by some individuals could be expected, with some interference with feeding, reproduc-

tion, or population dynamics. Ecosystem process and species habitat could have minor disruptions but no long-term impacts that would be considered outside natural variations. Mortality or interference with activities necessary for survival can be expected on an occasional basis without threatening the continued existence of the species on the Reservation.

Major Impacts on native fish would be detectable, and would be expected to be outside the natural range of variability and have long-term effects on native species, their habitats, or the natural processes sustaining them. Species viability and genetic variability could have long-term impacts affecting population dynamics. Frequent responses to disturbance by some individuals would be expected, with adverse impacts on feeding, reproduction, or decreases in population levels. Ecosystem process and species habitat could be lost over the long term and would be considered outside natural variations. Mortality or interference with activities necessary for survival of the species would be expected. Potential for local extinction of a species or more than one species would be great.

**Impact Duration Definition:**

Short-term	Recovery occurring within one generation for target fish species (e.g., 6-7 years for cutthroat trout) following any ground disturbing activity.
Long-term	Recovery would require more than one generation following any ground disturbing activity.

**Impacts of Alternative A—No Action**

Alternative A would allow for growth and development to continue at current rates without guidance from an IRMP. Agricultural and forested lands would continue to be modified without the goal of a coordinated approach to management approach. Population growth and development would continue to increase in areas around Coeur d’Alene Lake without efforts to contain it and manage the impacts. Population growth will continue and require additional infrastructure including roads for transportation. These activities would affect aquatic species through loss of species, their habitats, and the natural processes for sustaining them. Alternative A is expected to have a moderate short- and long-term potential impact on fish populations based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative B—Preferred Alternative**

Alternative B would plan for growth and development to occur in suitable areas based on guidance from the IRMP. The IRMP would encourage the conversion of selected agricultural lands back to a more pre-settlement vegetation composition. The Tribe would encourage application of



standards and guidelines from the Tribal Forest Management Plan while working with other federal and private entities across the landscape to preserve habitat for aquatic species. Development would be discouraged in much of the area around Coeur d'Alene Lake. Recreation growth would be designed to be consistent with maintaining native aquatic diversity. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative B, new road construction and expansion would be discouraged in most areas designated for aquatic or native fish enhancement or where in conflict with goals and objectives of retention. Alternative B is expected to have minor short- and long-term impacts on native fish populations based on this analysis and the analysis in the EAP Assessment.

### **Impacts of Alternative C—Conservation Alternative**

Alternative C would work hardest to contain growth and development except in areas considered suitable based on guidance from the IRMP. This IRMP alternative would encourage and promote a larger degree of conversion of agricultural lands back to a more pre-settlement vegetation composition. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan while working with other federal and private entities across the landscape to preserve native fish populations. Development would be discouraged in most areas around Coeur d'Alene Lake. Population growth will continue and require additional infrastructure including roads



Bull Trout

for transportation, but under Alternative C, new road construction and expansion would be discouraged in all areas that are unsuitable or in conflict with native fish enhancement goals and objectives of retention. Alternative C is expected to have a negligible to minor impact on native fish populations over the short- and long-term based on this analysis and the analysis in the EAP Assessment.

### **Impacts of Alternative D—Growth Alternative**

Alternative D would plan for growth and development to occur in all suitable areas based on guidance from the IRMP. This Alternative would not actively encourage the conversion of agricultural lands back to a more pre-settlement composition. This Alternative would encourage growth and development to meet greater economic returns. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan on Tribal lands and coordination would continue with other federal and private entities across the landscape to retain elements of native fish populations, but not as a priority. Development would be accommodated in most areas around Coeur d'Alene Lake. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative D, new road construction and expansion would be accepted in all areas to accommodate growth and expansion. Priorities of native fish population enhancement would be secondary to growth and development. Alternative D is expected to have a major impact on native fish populations over the short- and long-term based on this analysis and the analysis in the EAP Assessment.

### **Cumulative Impacts**

Changes in land use and corresponding loss of habitat over the past 120 or more years have already had moderate to major adverse impacts to native fisheries across the regional landscape. Regardless of the Alternative selected, losses of native species, their habitats, or the natural processes sustaining them from agriculture, forestry, recreation, human population growth, and roads are expected based on projects already in the planning phase (Section 4.0). The intensity of effects and impact duration would be different for all Alternatives. Alternatives A and D would be expected to add moderate and major cumulative impacts, respectively, if all elements of the Alternatives were implemented. Alternative B would be expected to contribute a minor cumulative impact and Alternative C is expected to contribute a negligible to minor cumulative impact if all elements of the Alternatives are implemented. The assessment is based on expected growth described in the goals of Alternatives A and D as opposed to containing growth and development to varying degrees described in Alternatives B and C.

### **Mitigation and Monitoring**

The Tribal Natural Resource Department in cooperation with other entities and individuals will continue to establish native fish population strongholds and potential areas for restoration and enhancement. Implementation strategies for containing growth and development to designated areas

will be developed cooperatively and will incorporate riparian, wetlands, stream restoration, and stream corridor preservation in key watersheds. The implementation and monitoring plan is located in Appendix F.

### **Summary of Impacts**

Alternative A would have a moderate impact on native fish populations based on current trends and without the IRMP for guidance. Alternative B would have minor impacts on native fish populations and C would have negligible to minor impacts on native fish populations based on the two Alternatives' degree of containing growth and development. Alternative D would have a major adverse impact on native fish populations and biodiversity based on projected growth and development for this Alternative.

#### ***4.3.6: Forest***

The assessment of impacts to forest vegetation includes the use of the general methodology described at the beginning of the Chapter and the resource specific information provided below. Information from the Interdisciplinary Team existing literature, vegetation mapping and discussion with local forestry specialists were used to determine impacts of the alternatives on forest vegetation. The areas of analysis for this topic included all lands within the Reservation. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

### **Regulations and Policy:**

- \* Tribal Firewood Cutting Resolution
- \* Timber Harvesting on Trust Lands
- \* National Indian Forest Resources Management Act
- \* National Environmental Policy Act
- \* Endangered Species Act
- \* Clean Water Act
- \* Clean Air Act
- \* National Historic Preservation Act
- \* Archaeological Resources Protection Act

### **Indicators:**

- \* Forest diversity in terms of structure, density and distribution.
- \* Loss of old growth and age class distribution of the forested areas.
- \* Sustainable yield in forested areas.

## Impact Assessment

Negligible	Changes in forest vegetative communities and productivity would not be measurable, with no effect on native species populations. Any effects would be small scale, and no species of special concern would be affected.
Minor	Changes in forest vegetative communities and productivity or species populations would be measurable, with small and localized effects to a relatively minor portion of any species population.
Moderate	Changes in forest vegetative communities and productivity or species populations would be readily apparent, with effects to a sizeable segment of the species' population over a relatively large area.
Major	Changes to forest vegetative communities and productivity or species populations would have a considerable long-term effect and affect a relatively large area on the Reservation. Species of special concern could be affected. Reclamation success could not be guaranteed.

## Impact Duration Definitions:

Short-term Recovers in less than three years from forest management.

Long-term Takes more than three years to recover from forest management.

## Impacts of Alternative A—No Action

Alternative A would allow for growth and development to continue at current rates without guidance from an IRMP. Forest stand structure, density, and distribution would not be restored to pre-settlement conditions over the long term due to conversion of forest lands into developed areas. The few pockets of old growth forest would continue to decline except in areas currently designated for preservation. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan. Agricultural lands would continue to be modified across the landscape. Recreation expansion would continue in areas around Coeur d'Alene Lake, potentially changing structure and density and increasing introduction of non-native species. Population growth will continue and require additional infrastructure including roads for transportation, which will decrease the number of forested areas. Alternative A is expected to have a moderate potential impact on forest structure, density, distribution, and old growth over the long-term. Sustainable yield would be adversely impacted by the decrease in forest lands.

## Impacts of Alternative B—Preferred Alternative

Alternative B would plan for growth and development to occur in suitable areas based on guidance from the IRMP. The IRMP would encourage the conversion of selected agricultural lands back to a more pre-settlement composition, which would include forests. The Tribe would en-

courage application of standards and guidelines from the Tribal Forest Management Plan while working with other federal and private entities across the landscape to preserve diversity, distribution, density, and old growth components. Recreation expansion would be discouraged in some areas around Coeur d'Alene Lake, working to maintain forested riparian habitats. Development would be encouraged to be consistent with maintaining forest and plant diversity. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative B, new road construction and expansion would be discouraged in most areas that are unsuitable or in conflict with forest goals and objectives of retention and sustainable yield. Alternative B is expected to have a minor impact on forests over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Impacts of Alternative C—Conservation Alternative**

Alternative C would work hardest to contain growth and development except in suitable areas based on guidance from the IRMP. This IRMP alternative would encourage and promote a larger degree of conversion of agricultural lands back to a more pre-settlement vegetation composition. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan while working with other federal and private entities across the landscape to preserve diversity, stand structure, old growth, and appropriate stand densities. Development would be discouraged in most areas around Coeur d'Alene Lake, working to maintain and restore forest components in these shoreline habitats. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative C, new road construction and expansion would be discouraged in all areas that are unsuitable or in conflict with forest goals and objectives of retention of sustainable and diverse vegetation. Alternative C is expected to have a negligible to minor impact on forests over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Impacts of Alternative D—Growth Alternative**

Alternative D would plan for growth and development to occur in all suitable areas based on guidance from the IRMP. This Alternative would not actively encourage the conversion of agricultural lands back to a more pre-settlement composition. This Alternative would encourage growth and development to meet greater economic returns. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan on Tribal lands and coordination would continue with other federal and private entities across the landscape to retain and restore elements of pre-settlement forest structure, density, old growth, and diversity, but not as a priority. Development would be accommodated in most areas around Coeur d'Alene Lake, increasing the loss of forest shoreline habitats. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative C, new road construction and expansion would be accepted in all areas to accommodate growth and expansion. Priorities of forests would be secondary to growth and development causing a loss in sustainable yield due to the loss of forest lands over time. Alternative D is expected to have a major impact on forests over the long-term based on this analysis and the analysis in the EAP Assessment.



### **Cumulative Impacts**

Changes in land use and past forest management actions over the past 120 or more years have already had moderate to major impacts on forests across the regional landscape. Regardless of the Alternative selected, impacts on forest structure, density, diversity, old growth, productivity and sustainable yield from agriculture, forestry, recreation, human population growth, roads and other human impacts are expected based on projects already in the planning phase (Section 4.0). The intensity of effects and impact duration would be different for all Alternatives. Alternatives A and D would be expected to add a moderate to major cumulative impact, respectively, if all elements of the Alternatives were implemented. Alternatives B and C are expected to contribute a minor and negligible to minor cumulative impact, respectively, if all elements of the Alternatives are implemented. The assessment is based on the largely unchecked growth and development described in the analysis of Alternatives A and D, in contrast with planning for and containing growth and development to differing degrees as described in Alternatives B and C.

### **Mitigation and Monitoring**

The Tribal Natural Resource Department in cooperation with other entities and individuals will work toward implementing guidelines outlined in the Tribal Forest Management Plan across the Reservation to maintain and restore pre-settlement structure, diversity, densities, old growth, and sustainable yields in forested areas. Additional areas would be designated for forest restoration by their potential for restoration and enhancement.

### **Summary of Impacts**

Alternative A would have a moderate impact on forested areas based on current trends and without the IRMP for guidance. Alternatives B and C would have a potential minor and negligible to minor impact, respectively, based on the two Alternatives' degree of containing growth and development. Alternative D would have a major impact on forests based on prioritizing development and growth over restoration, maintenance and management of forested areas.

#### ***4.3.7 Minerals***

The DPEIS does not assess the impact of historic mining and/or milling activities on or near the Coeur d'Alene Reservation or the Coeur d'Alene River. The Natural Resource Damage Assessment being undertaken by the Tribe and the United States is addressing mining- and/or milling-related resource impacts independent of this IRMP DPEIS.

### **Indicators:**

- \* Number of new mining sites (aggregate) on the Reservation.

### **Impact Assessment**

Impacts on the development of material sites, gravel pits or borrow pits on the Reservation would be considered minor no matter which IRMP management alternative is implemented. There would



be more specific management of material sites and gravel or borrow pits in Alternatives B and C, and some discouragement of developing new sites in Alternative C. In Alternatives A and D, there is less specific management of material sites. However, even in Alternatives A and D, existing sites would be monitored for effects on natural resources and future sites would be assessed for suitability and consistency with the goals in the IRMP.

### **Mitigation and Monitoring**

The Tribal Natural Resource Department in cooperation with other entities and individuals will assess material sites across the Reservation and establish and cooperatively implement guidelines for existing and future sites.

#### **4.3.8: *Riparian***

The assessment of impacts to riparian habitat includes the use of existing information and information provided below. Available information was obtained from the Interdisciplinary Team, existing literature, riparian mapping, and discussions with local stream specialists to determine impacts of the alternatives. The areas of analysis for this topic included all lands within the Reservation. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

#### **Indicators:**

- \* Loss of riparian habitats and shoreline areas.

#### **Impact Assessment**

Negligible	No measurable impact on riparian habitats.
Minor	Adverse impact—Loss of riparian habitats would be below or at the lower levels of detection over the short-term during implementation activities.  Beneficial impact—Increases in riparian habitats would be below or at the lower levels of detection over the short-term during implementation activities.
Moderate	Adverse impact—Loss of riparian habitats would be detectable and relatively small in terms of area and the nature of the change over the short term.  Beneficial impact—Increases in riparian habitats would be detectable and relatively small in terms of area and the nature of the change over the short term.
Major	Adverse impact—Loss of riparian habitats would be readily apparent, with possible long-term effects on wetland vegetation. Wetland or flood-

plain functions and value would be affected and possibly difficult to mitigate.

Beneficial impact—Increases in riparian habitats would be readily apparent, with possible long-term effects on wetland vegetation. Wetland or floodplain functions and value would be enhanced over the long term.

**Impact Duration Definition:**

Short-term	Recovers in less than three years from implementation activity.
Long-term	Recovery or change in conditions of riparian habitat beyond 3 years time.

**Impacts of Alternative A—No Action**

Alternative A would continue stream and riparian restoration activities in key watersheds on a project-by-project basis. General restoration plans are in place for the Lake Creek, Benewah, Evans, Alder and Hangman Creeks. Without guidance from an IRMP, growth and development would continue at current rates and these restoration activities would probably not keep pace with loss of riparian habitats. Agricultural lands would continue to be modified and forestry practices would modify riparian areas and shoreline habitats. Development would continue at the current pace in areas around Coeur d’Alene Lake causing additional losses of shoreline riparian habitat. Population growth will continue and require additional infrastructure including roads for transportation, which could also affect riparian habitats. The Tribe would encourage the application of Tribal Forest Management Plan stream buffers on all Reservation lands. Alternative A is expected to have a moderate adverse impact on the loss of riparian habitat over the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative B—Preferred Alternative**

Alternative B would continue existing stream and riparian restoration activities in key watersheds, as well as increase the emphasis on these activities, possibly including areas outside of the designated key watersheds. Additional growth and development would occur in suitable areas based on guidance from the IRMP. The IRMP would encourage the conversion of selected agricultural lands back to a more pre-settlement composition and restoration of riparian habitats. The Tribe would encourage the application of Tribal Forest Management Plan stream buffers on all Reservation lands. New development would be discouraged in much of the areas around Coeur d’Alene Lake where critical shoreline and riparian habitat exists. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative B, new road construction and expansion would be discouraged in most areas that are unsuitable or in conflict with shoreline and riparian habitat goals of retention. Alternative B is expected to have a net moderate beneficial impact on riparian habitats over the long-term based on this analysis and the analysis in the EAP Assessment.



Coeur d'Alene Basin—Scenery from the Cataldo Mission

### **Impacts of Alternative C—Conservation Alternative**

Alternative C would continue existing stream and riparian restoration activities in key watersheds, as well as increase the emphasis on these activities, possibly including areas outside of the designated key watersheds. Alternative C would more aggressively identify and prioritize areas for shoreline and riparian habitat restoration or protection. Alternative C would also work the hardest to contain growth and development except in areas considered suitable based on guidance from the IRMP. This IRMP alternative would encourage and promote a larger degree of conversion of agricultural lands back to a pre-settlement composition including restoration and protection of shoreline and riparian habitats. The Tribe would encourage the application of Tribal Forest Management Plan stream buffers on all Reservation lands. New development would be discouraged in areas around Coeur d'Alene Lake where in conflict with shoreline and riparian habitat restoration and preservation. Under Alternative C new road construction and expansion would be discouraged in all areas that were unsuitable or in conflict with designated riparian goals and objectives. Alternative C is expected to have a major beneficial impact on riparian and shoreline habitats over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Impacts of Alternative D—Growth Alternative**

Alternative D would continue stream and riparian restoration activities in key watersheds on a project-by-project basis. Alternative D would plan for growth and development to occur in all suitable areas based on guidance from the IRMP. This Alternative would not actively encourage the conversion of agricultural lands back to a pre-settlement composition. Alternative D would encourage growth and development to meet greater economic returns. The Tribe would encourage the application of Tribal Forest Management Plan stream buffers on all Reservation lands, but not as a priority. New development would be accommodated in most areas around Coeur d'Alene Lake with minimal retention of shoreline and riparian habitats. Alternative D would allow new road construction and expansion in all areas to accommodate growth and expansion with minimal consideration for shoreline or riparian habitats. Priorities of maintaining riparian and shoreline habitat would be secondary to growth and development. Alternative D is expected to have a major adverse impact on riparian and shoreline habitats over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Cumulative Impacts**

Changes in land use and past management of riparian areas over the past 120 or more years have already had moderate to major impacts across the regional landscape. Regardless of the Alternative selected, losses of riparian and shoreline habitat from agriculture, forestry, recreation, human population growth, and roads is expected based on projects already in the planning phase (Section 4.0). The intensity of effects and impact duration would be different for all Alternatives. Alternatives A and D would be expected to add a moderate to major adverse cumulative impact, respectively, if all elements of the Alternatives are implemented. Alternatives B and C are expected to contribute a moderate to major beneficial cumulative impact, respectively, if all elements of the Alternatives are implemented. The assessment is based on the trends in land use and growth described in the Alternatives.

### **Mitigation and Monitoring**

The Tribal Natural Resource and Planning Departments in cooperation with other entities and individuals will establish priorities for all watersheds across the Reservation for protection and restoration of shoreline and riparian habitats. Development and implementation of the Tribal Forest Management Plan stream buffers would be a high priority for alternatives B and C and a lesser priority in Alternatives A and D (Appendix E). Implementation strategies for containing growth and development to designated areas and development of shoreline area building setbacks would be developed cooperatively. Appendix F contains the Implementation and Monitoring Plan for the IRMP DPEIS.

### **Summary of Impacts**

Alternative A would have a moderate adverse impact on riparian and shoreline habitats based on current trends and without the IRMP for guidance. Alternatives B and C would have a moderate

to major beneficial impact, respectively, based on the two Alternatives' degree of working to contain growth and development in these areas. Alternative D would have a major adverse impact on riparian habitats based on its focus on development and growth.

#### **4.3.9: Soil**

Farming practices, timber harvest, roads, development, fire and grazing have an effect on soils. Soil productivity across the Reservation is generally good. However sediment production and soil loss from land use practices have greatly increased from pre-settlement conditions on the Reservation. More recent changes in farming, grazing, and timber harvesting practices have resulted in some reductions in sediment production to Reservation waters.

#### **Regulations and Policy**

- \* Indian Agricultural Resource Management Act
- \* Tribal Forest Management Plan
- \* Soil and Water Resources Conservation Act of 1977

#### **Methodology**

The assessment of impacts includes the use of the general methodology described in the introduction and the resource specific information provided below. Available information was obtained through interdisciplinary team meetings. Specific soils data or surveys were available in the Tribe's GIS Program. General soil types and erosion potential have been discussed and analyzed, based on reference information from the EAP Assessment. The area of the analysis for soils includes the Reservation. The intensity and duration of impacts are discussed in the analysis below using the following criteria and definitions.

#### **Indicators:**

- \* Erosion potential and rates.
- \* Loss of chemical fertility, organic matter, and microorganisms.

#### **Impact Assessment**

Negligible	Impacts on soil erosion potential, chemical fertility, organic matter content, and microorganisms would be below or at the lower levels of detection. Any effects on soil productivity or fertility would be slight and no long-term effects to soils would occur.
Minor	The impacts on soil erosion potential, chemical fertility, organic matter content, and microorganisms would be detectable, but generally of limited area and localized. Effects on soil productivity or fertility would be small.

Moderate	The impacts on soil erosion potential, chemical fertility, organic matter content, and microorganisms would be readily apparent and result in a change to the soil character over a relatively wide area.
Major	The impacts on erosion potential, chemical fertility, organic matter content, and microorganisms would have a substantial and possibly permanent consequence. Effects on productivity or fertility would be readily apparent, long-term, and substantially change the character of the soils over a large area.

### **Impact Duration Definitions:**

Short-term	Recovers in less than three years from action.
Long-term	Takes more than three years to recover from action.

### **Impacts of Alternative A—No Action**

The impacts on soils from agriculture and forestry would likely continue at current levels for the foreseeable future. Human habitation and road building has increased somewhat over the last 10 years, particularly in the forested northern part of the Reservation and these increases would continue or possibly accelerate (Coeur d’Alene Tribe 2000b). Without implementation of an IRMP, a moderate long-term impact is anticipated on soils based on current management practices and trends.

### **Impacts of Alternative B—Preferred Alternative**

The impacts on soils from agriculture and forestry with implementation of Alternative B would likely be decreased from current levels. Human habitation, road building, agricultural practices, and forestry would be subject to the goals and objectives of the IRMP, which has the potential to decrease agricultural lands and implement suitability assessment for development in designated areas. With implementation of an IRMP, a minor long-term impact is anticipated to soils based on goals outlined in the IRMP.

### **Impacts of Alternative C—Conservation Alternative**

The impacts to soils from agriculture and forestry with implementation of Alternative C have the potential to be greatly decreased from current levels. Human habitation road building, agricultural practices, and forestry would be subject to the goals and objectives of the IRMP, which for Alternative C would potentially decrease agricultural lands to a greater extent than Alternative B and implement suitability assessment for development in all areas. With implementation of an IRMP a negligible long-term impact is anticipated to soils based on goals outlined in the IRMP.

### **Impacts of Alternative D—Growth Alternative**

The impacts to soils from agriculture and forestry with implementation of Alternative D have the potential to increase from current levels. Human habitation, road building, agricultural practices,



and forestry would be subject to the goals and objectives of the IRMP, which for Alternative D, would increase agricultural lands and allow for development in all areas. With implementation of an IRMP, a moderate long-term impact is anticipated to soils based on goals outlined in the IRMP.

### **Cumulative Impacts**

Changes in land use and past agricultural practices over the past 120 or more years have already had moderate to major impacts across the regional landscape. Regardless of the Alternative selected, soil erosion potential, chemical fertility, organic matter content, and microorganism's losses are anticipated from agriculture, forestry, recreation, human population growth, and roads. Based on projects already in the planning phase (Section 4.0), the intensity of effects and impact duration would be different for all Alternatives. Alternatives A and D would be expected to add a moderate cumulative impact if all elements of the Alternatives were implemented. Alternatives B and C are expected to contribute a minor and negligible cumulative impact, respectively, if all elements of the Alternatives are implemented. The assessment is based on the expansion of expected land use described in the goals of Alternatives A and D as opposed to the goals containing growth and development in important habitat areas describe in Alternatives B and C.

### **Mitigation and Monitoring**

The Tribal Natural Resource Department in cooperation with other entities will work to develop implementation strategies for prioritizing areas for reduction of soil erosion, loss of chemical fertility, organic matter content and microorganisms would be included in the implementation of the Alternatives. A prioritization schedule developed cooperatively would be implemented for specific areas within priority watershed. These areas would be in conjunction with riparian, wetland, stream, and aquatic restoration activities.

### **Summary of Impacts**

Alternative A would have a moderate impact on soils based on current trends and without the IRMP for guidance. Alternatives B and C would have a minor and negligible impact, respectively, based on the two Alternatives' degree of land use changes and identification of areas for restoration. Alternative D would have a moderate impact on soils based on its focus on development and conservation as less of a priority.

#### ***4.3.10: Water***

The quality of ground water in Idaho's aquifers is influenced by both natural factors and by human activities. Natural factors affecting ground water quality include; the chemistry of precipitation; the dissolution of organic and mineral substances as the water percolates through earth materials; and the length of contact of the ground water with soil and rocks of the aquifer (Ground Water Quality Council 1996). Human activities that impact ground water quality are water withdrawal from the system, and contamination with biological or chemical substances. Hydrologic changes are those changes related to the quantity and timing of surface water runoff and water distribu-

tion. These changes can include clearing of large tracts of timber, destruction of wetlands and interception of shallow ground water through road building. Surface water quality can be negatively impacted through erosion, agricultural practices, grazing, poorly maintained septic systems and from permitted discharges such as waste water from treatment plants. Protection of surface water hydrology and water quality can be accomplished through planning at a watershed scale to minimize riparian degradation, control anthropogenic pollution sources, and carefully designing and maintaining forest roads.

## **Regulations and Policy**

- \* Soil and Water Resources Conservation Act of 1977
- \* Safe Drinking Water Act
- \* Federal Water Pollution Control Act (known as the Clean Water Act)

## **Methodology**

The assessment of impacts includes the use of the general methodology described in the introduction and the resource specific information provided below. Available information was obtained through interdisciplinary team meetings. Existing literature, existing spatial data, and professional knowledge of the hydrologic systems were used to conduct this analysis. The area of analysis for this topic included the surface waters within the Reservation and up- and down-gradient reaches of areas outside the Reservation boundaries to include watersheds as a whole. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

## **Indicators:**

- \* Impacts on water quality and quantity from agricultural practices, transportation systems, forestry practices, water systems, human habitation and other human impacts.

## **Impact Assessment**

Negligible	Changes to water quality/quantity would be either non-detectable or, if detected, would have impacts that would be considered slight and localized.
Minor	Changes to water quality/quantity would be measurable, although the changes would be small and the impacts would be localized.
Moderate	Changes to water quality/quantity would be measurable and apparent, with sufficient consequences to cause concern, although impacts would be relatively local and/or easily mitigated.
Major	Changes to water quality/quantity would be readily measurable, would have substantial and possibly permanent consequences, and would have

noticeable impacts on down gradient streams. Mitigation would likely be unsuccessful.

**Impact Duration Definitions:**

Short-term	Recovers in less than one month after action.
Long-term	Recovers in more than one month after action.

**Impacts of Alternative A—No Action**

Potentially, ground water pollution could adversely impact fish habitat, riparian plants and animals, terrestrial wildlife, lakes and wetlands. It is unknown where and to what degree sub-surface flow currently interacts with surface water on the Reservation. No studies have been done on the Reservation to determine ecological impacts associated with ground water contamination.

Under current management, depletion of ground water could affect the ability to maintain low flows in many of the smaller creeks. This would in turn have an adverse effect on fish and other aquatic species. Current trends for agricultural development, grazing, extensive timber harvesting, roads, ground water use, channelization of rivers and streams, and increased human development are expected to continue. Forest canopy cover appears to be continuing to decline impacting quantity of water, timing of runoff, and peak flows. A moderate long-term impact on water quantity and quality is expected. Activities to reduce pollution entering 303d (water quality impaired) streams would continue.

**Impacts of Alternative B—Preferred Alternative**

With implementation of Alternative B of the IRMP, a greater emphasis would be extended to ground water and surface water quality and quantity through watershed assessments, cooperative agreements and remediation activities, stream restoration activities, and an effort to increase the use of riparian buffers. Activities to reduce 303d (water-quality impaired) streams would be a high priority. A minor long-term impact on water quality and quantity is potential with implementation of Alternative B.

**Impacts of Alternative C—Conservation Alternative**

With implementation of Alternative C of the IRMP, maximum emphasis would be extended to ground water and surface water quality and quantity through watershed assessments, cooperative agreements and remediation activities, stream restoration activities, and efforts to increase use of riparian buffers. Activities to reduce 303d streams would be a high priority. A minor long-term impact on water quality and quantity is potential with implementation of Alternative C.

**Impacts of Alternative D—Growth Alternative**

With implementation of Alternative D of the IRMP, the emphasis on ground water and surface water quality and quantity would be similar to Alternative A. Increased emphasis on develop-

ment on the Reservation would increase impacts to surface water and ground water through greater demand for drinking water, increased wastewater to treat and release, increased stormwater runoff from impervious surfaces, increased erosion potential from construction activities, and other impacts related to development. A major long-term impact on water quality and quantity would be expected with implementation of Alternative D.

### **Cumulative Impacts**

Changes in land use and past management of water resources over the past 120 or more years have already led to moderate to major impacts across the regional landscape. Regardless of the Alternative selected, water quality/quantity would be affected by agricultural practices, transportation systems, forestry practices, water systems, human habitation and other human impacts. Projects already in the planning phase (Section 4.0) would also add to the cumulative effects of decreases in water quality and quantity. The intensity of effects and impact duration would be different for all Alternatives. Alternatives A and D would be expected to add a moderate and major cumulative impact, respectively, if all elements of the Alternatives were implemented. Alternatives B and C are expected to contribute a minor cumulative impact if all elements of the Alternatives are implemented. The assessment is based on the expansion of expected development described in the goals of Alternatives A and D as opposed to the goals containing growth and development close to water bodies and stream areas described in Alternatives B and C.

### **Mitigation and Monitoring**

The Tribal Natural Resource Department in cooperation with other entities will establish priorities for all watersheds across the Reservation for protection and restoration, which would contribute to a decrease in water quality and quantity impacts. Development and implementation of the Tribal Forest Management Plan's stream buffers would be a high priority (Appendix E). Implementation strategies for containing growth and development to designated areas and development of shoreline area building setbacks would be developed cooperatively. This monitoring program would be integrated with wetlands, riparian, stream restoration, and watershed restoration.

### **Summary of Impacts**

Alternative A would have a moderate impact on water quality and quantity based on current trends and without the IRMP for guidance. Alternatives B and C would have a minor impact based on the two Alternatives' degree of restoration and maintenance activities in priority watersheds. Alternative D would have a major impact on water quality and quantity based on its focus on development within areas of critical concern for water quality and quantity.

#### ***4.3.11: Wetlands***

Since European settlement, most of the wetlands located on the Reservation have been eliminated, or their function severely altered. Wetlands have been impacted by chemicals and physical alteration caused by numerous human related activities that did not exist prior to settlement (includ-

ing farming, timber harvest, road building, hydropower development, housing, commercial and industrial development, etc.). Hydrology and water quality have been impacted on the entire Reservation to some extent due to wetland loss.

### **Regulations and Policy**

- \* Executive Order 11990—Protection of Wetlands
- \* Executive Order 11988—Floodplain Management
- \* Rivers and Harbors Act
- \* Clean Waters Act and Section 404
- \* Coeur d’Alene Tribal Comprehensive Plan and related ordinances (in draft)

### **Methodology**

The assessment of impacts includes the use of the general methodology described above and the resource specific information provided below. Available information was obtained through interdisciplinary team meetings. Existing literature, existing spatial data, and an understanding of the past and present wetland complexes and floodplains were used for this analysis. The areas of analysis for this topic included the wetlands and floodplains within the Coeur d’Alene Reservation boundaries and those watersheds and up and downgradient streams that are a part of or are affected by the changes within the Reservation boundaries or that affect the waters within the Reservation. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

### **Indicators:**

- \* Loss of wetlands from agriculture, forestry, transportation, grazing, human habitation and other human impacts.

### **Impact Assessment**

No impact	No measurable effect to wetlands or floodplains. Long-term impacts would be considered beneficial.
Negligible	Impacts on wetlands or floodplains would be below or at the lower levels of detection over the short-term during implementation activities.
Minor	The impacts on wetlands or floodplains would be detectable and relatively small in terms of area and the nature of the change over the short term.
Moderate	Impacts on wetlands or floodplains would be readily apparent, with possible long-term effects on wetland vegetation. Wetland or floodplain functions and value would be affected and possibly difficult to mitigate.

Major	Impacts on wetlands or floodplains would be observable over a relatively large area and would change the character of the wetland or floodplain substantially. Wetland and floodplain functions and value could be permanently damaged, and mitigation would likely be unsuccessful.
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#### **Impact Duration Definitions:**

Short-term	Recovers in less than three years from implementation activity.
Long-term	Recovery or change in conditions of wetland/floodplain resources beyond 3 years time.

#### **Impacts of Alternative A—No Action**

Under Alternative A, there would be some effort to maintain existing wetlands and restore wetlands that have been adversely impacted. However, there would not be as much emphasis on containing growth in areas where wetlands exist. With development occurring across the Reservation with little advance planning and coordination, the impacts to wetlands would outweigh the restoration efforts. The extent of restoration activities would be minimal and limited to a project-by-project basis or where funding and/or mitigation are available or required. Alternative A would have a moderate impact on wetlands and floodplains on the Reservation based on current management and regulatory practices.

#### **Impacts of Alternative B, Preferred**

Under Alternative B, the establishment of goals for restoration and identification of specific areas for implementation would increase the acreage of wetland complexes and decrease the amount of floodplain encroachment. Although new developments in designated areas would most likely impact wetlands to some degree, mitigation and restoration of wetlands is likely to offset the impacts. If fully implemented, the goal of restoring 30 percent of the native riparian/wetland habitat would result in no impact on wetlands. A long-term beneficial impact would be expected.

#### **Impacts of Alternative C—Natural Resource Conservation**

Under Alternative C, the establishment of goals for identifying and restoring specific areas would increase the acreage of wetland complexes and decrease the amount of floodplain encroachment. Although new developments in designated areas would most likely impact wetlands somewhat, the impacts would be more than offset by the mitigation and restoration. If fully implemented, the goal of restoring 50 percent of the native riparian/wetland habitat would result in no impact on wetlands. A long-term beneficial impact would be expected.

#### **Impacts of Alternative D—Growth and Development**

Under Alternative D, the direct effects to wetlands would be greater than impacts identified in Alternative A. The amount of growth that is projected in Alternative D would negatively impact



wetlands resources over thousands of acres more than in all of the other alternatives. Restoration of 10 percent of the native riparian/wetland habitat would not effectively change or stop the decline of wetlands across the area over the long-term. A major impact to wetlands would be expected in Alternative D.

### **Cumulative Impacts**

In the past 120 years, an estimated 80% of the wetlands on the Reservation have been lost to human activities. There have already been major cumulative impacts to wetlands. Based on selection of Alternatives A, B and C, it is not likely that additional adverse cumulative effects would exceed moderate levels. Implementation of any of the alternatives would be subject to mitigation for loss of wetland resources. Alternatives B and C would involve actively restoring and maintaining wetland resources across the Reservation as a priority, constituting an impact over the long-term. Alternative A would maintain the current amount of protection or restoration activities. Alternative D would greatly increase the area for human development and, therefore, the potential impacts to wetlands would be major. Restoration or wetland fill activities would be coordinated and protective measures would be identified and applied on a case-by-case basis.

### **Mitigation and Monitoring**

The Tribal Natural Resource Department in cooperation with other entities will work to establish priorities for all wetland areas across the Reservation for protection and restoration of those habitats. The Tribe will encourage application of the Tribal Forest Management Plan stream buffers as a high priority (Appendix E). Strategies for containing growth and development to designated areas would be developed cooperatively.

### **Summary of Impacts**

Alternative B would result in no adverse impacts on wetlands and floodplains, with possible long-term beneficial impacts through restoration and protection. Alternative C would propose to do more restoration and protection than Alternative B. Alternative A would have a moderate impact on wetlands. Alternative D would have a major adverse impact on wetlands due to the amount of land that would be designated for development and the fact that restoration activities would not be as high of a priority as development. Actions identified in Alternatives A and D have the potential to decrease the amount of wetlands, as well as function and value of existing wetlands.

#### ***4.3.12: Wildlife***

The cumulative impacts of land use changes have led to habitat loss and declines in some native wildlife. An estimated 114,411 acres of combined forest, grassland, and shrub types have been converted to agricultural or developed areas. Forest types once dominated by large, mature or old growth ponderosa pine and white pine have been lost. Critical wetland and riparian habitats that support a high diversity of wildlife species have also been lost.

The greatest potential for regaining native wildlife populations is associated with recovery of

native plant communities. Native plants species and communities can be recovered to the extent that the impacts of agriculture, forestry, transportation, recreation, and human interactions are managed to minimize detrimental effects.

Habitat restoration and enhancement programs likely have much potential to increase wildlife populations and diversity. Forestry, agriculture, recreation, and other activities can also be modified to improve habitats and wildlife populations. Other management tools such as hunting and trapping and the regulation of these activities can also be used to manipulate population levels.

## **Regulations and Policy**

- \* Coeur d'Alene Tribe Natural Resource Department
- \* Tribal Forest Management Plan
- \* Tribal Hunting and Fishing Regulations
- \* Endangered Species Act
- \* National Environmental Policy Act
- \* Northwest Power Act
- \* Migratory Bird Treaty Act

## **Methodology**

The assessment of impacts includes the use of the general methodology described above and the resource specific information provided below. The area of analysis for this topic includes the Reservation and the surrounding landscape as far north as Canada, south to the Snake River, west to the scablands, and east to the Bitterroot Range. Available information was obtained through interdisciplinary team meetings. Existing literature, existing spatial data, inventory data, and an understanding of effects of changes in land use on wildlife species, corridors, and critical habitat were used for this analysis. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

## **Indicators:**

- \* Impacts on native wildlife species and native wildlife species habitat from agricultural practices, forestry practices, transportation systems, recreation practices, and human habitation.

## **Impact Assessment:**

Negligible	There would be no observable or measurable impacts on native wildlife species, their habitats, or natural processes sustaining them. Impacts would be well within the range of natural fluctuations.
Minor	Impacts on native wildlife would be detectable, but would not be expected to be outside the natural range of variability and would not be expected

to have any long-term effects on native species, their habitats, or the natural processes sustaining them. Species viability and genetic variability would remain stable over the long term. Occasional responses to disturbance by some individuals would not interfere with feeding, reproduction, or population dynamics. Ecosystem processes and wildlife habitat may be altered, but there would be no long-term impacts that would be considered outside natural variations.

Moderate

*Adverse impacts* on native wildlife would be detectable and could be expected to be outside the natural range of variability and to cause long-term reductions in native species, their habitats, or the natural processes sustaining them. However, species viability and genetic variability would remain stable over the long term. Frequent responses to disturbance by some individuals could be expected, with some interference with feeding, reproduction, or population dynamics. Ecosystem processes and wildlife habitat may be altered, but there would be no long-



Hnchch'li: "Where There Are Little Muskrats"

term impacts that would be considered outside natural variations. Mortality or interference with activities necessary for survival can be expected on an occasional basis without threatening the continued existence of the species.

**Beneficial impacts** on native wildlife would be detectable and could be expected to be outside the natural range of variability and to cause long-term increases in native species populations, their habitats, or the natural processes sustaining them. Species viability and genetic variability would remain stable over the long term. Mortality or interference with activities necessary for survival can be expected on an occasional basis but will not permanently negate beneficial impacts.

Major

**Adverse impacts** on native wildlife would be detectable, and would be expected to be outside the natural range of variability and have long-term effects on native species, their habitats, or the natural processes sustaining them. Species viability and genetic variability could have long-term impacts affecting population dynamics. Frequent responses to disturbance by some individuals would be expected, with adverse impacts on feeding, reproduction, or decreases in population levels. Ecosystem process and species habitat could be lost over the long term and would be considered outside natural variations. Mortality and/or interference with activities necessary for survival are expected.

**Beneficial impacts** on native wildlife would be detectable, and would be expected to be outside the natural range of variability and to result in long-term increases in native species, their habitats, or the natural processes sustaining them. Ecosystem process and species habitat would be bolstered. Increases in mortality and/or interference with activities necessary for survival would be avoided.

**Impact Duration Definitions:**

Short-term	Recovers in less than one to three years (depending on the species).
Long-term	Recovers in more than one to three years (depending on the species).

**Impacts of Alternative A—No Action**

Alternative A would continue current restoration activities in key watersheds. Without guidance from an IRMP, growth and development would continue at current rates and these restoration activities would most likely not keep pace with loss of species or species' habitats. Agricultural lands would continue to be modified and forestry practices would modify habitat areas and species viability. Recre-

ation expansion trends would continue to dominate areas around Coeur d'Alene Lake causing additional losses of shoreline riparian habitat. Population growth will continue and require additional infrastructure including roads for transportation, which could also affect species and species habitats. Alternative A is expected to have a moderate adverse impact on the loss of species and species habitat over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Impacts of Alternative B—Preferred Alternative**

Alternative B would continue current restoration activities in key watersheds, while also providing additional protection for habitats outside of the designated key areas. Additional growth and development would occur in suitable areas based on guidance from the IRMP and cooperative agreements for species and species habitat restoration. The IRMP would encourage the conversion of selected agricultural lands back to a more pre-settlement composition and restoration of riparian habitats. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan (Appendix E) while working with other federal and private entities across the landscape to preserve riparian and forested habitat in other designated key watersheds. Recreation expansion would be discouraged in some areas around Coeur d'Alene Lake where critical shoreline and riparian habitat exists. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative B, new road construction and expansion would be discouraged in most areas that are unsuitable or in conflict with designated goals. Alternative B is expected to have a minor adverse impact on species and species habitat over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Impacts of Alternative C—Conservation Alternative**

Alternative C would work the hardest to identify and prioritize areas for habitat restoration or protection. Alternative C would also work to contain growth and development through cooperative and collaborative agreements, except in areas considered suitable for growth based on guidance from the IRMP. This IRMP alternative would encourage and promote a larger degree of conversion of agricultural lands back to a more pre-settlement composition and include goals for restoration and protection of shoreline and riparian habitats. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan and work with other federal and private entities across the landscape to increase implementation of these guidelines in all watersheds as a priority. Recreation expansion would be discouraged in areas around Coeur d'Alene Lake where in conflict with shoreline and riparian habitat restoration and preservation. Under Alternative C, new road construction and expansion would be discouraged in all areas that are unsuitable or in conflict with IRMP goals. Alternative C is expected to have a moderately beneficial impact on species and species habitats over the long-term based on this analysis and the analysis in the EAP.

### **Impacts of Alternative D—Growth Alternative**

Alternative D would plan for growth and development to occur in all suitable areas based on guidance from the IRMP. This Alternative would not actively encourage the conversion of agricul-

tural lands back to a more pre-settlement composition. This Alternative, if selected, would encourage growth and development to meet greater economic returns. The Tribe will encourage application of standards and guidelines from the Tribal Forest Management Plan, but not as a priority. Recreation expansion would be encouraged in most areas around Coeur d'Alene Lake with minimal retention of shoreline and riparian habitats. Alternative D would allow new road construction and expansion in all areas to accommodate growth and expansion with minimal consideration for species and species habitats except on Tribal lands, and where other federal actions require conservation. Priorities of maintaining important habitat would be secondary to growth and development. Alternative D is expected to have a major adverse impact on species and species habitats over the long-term based on this analysis and the analysis in the EAP.

### **Cumulative Impacts**

Major cumulative impacts to wildlife species and habitats have taken place over the past 120 years. Cumulative impacts to wildlife in Alternative A from past, present and future expected actions are expected to be moderately adverse for the species present, depending on the species and the timing of projects throughout the Reservation. The impacts to wildlife habitat from other sources relating to recreation, agriculture, and forestry, and other projects would be detectable but slight, primarily through the interruption of movement from human presence in and around the Reservation and peripheral lands. Alternative D would have similar impacts but due to encouragement of growth related activities would have a major adverse impact on species and species habitat. Alternative B would have a minor adverse impact on wildlife and Alternative C would have a moderately beneficial impact based on the degree of expected growth and their emphases on restoration and conservation.

### **Mitigation and Monitoring**

The Tribal Natural Resource Department in cooperation with other entities will establish areas of priority for critical habitat, habitat corridors, and restoration in all watersheds across the Reservation for protection and restoration of native wildlife species and species habitats.

### **Summary of Impacts**

Under Alternatives A and D, current management would result in moderate to major adverse impacts, respectively, to wildlife and wildlife habitat over the short and long term. Under Alternative B, minor impacts to wildlife habitat and species would be expected given the additional growth. Wildlife would moderately benefit from increased habitat from implementation of Alternative C.

#### ***4.4.13: Threatened and Endangered Species***

Species lists for Threatened and Endangered Species (TES), native species, aquatic species, botanical species and introduced species are found in Appendix H.



## Methodology

This assessment covers potential impacts to listed fish, wildlife, and plant species. In consultation with the US Fish and Wildlife Service (USFWS), a list of all current listed species was obtained for the vicinity of the Coeur d'Alene Reservation in Kootenai and Benewah counties.

## Indicators:

- \* Loss of species or species habitat.

## Impact Assessment.

No Effect	No federally listed species would be affected or the alternative would affect an individual of a listed species or its critical habitat, but the change would be so small that it would not be of any measurable or perceptible consequence to the protected individual or its population.
May Affect, Not Likely to Adversely Affect	An individual(s) of a listed species or its critical habitat may be affected, but the change would be small and would not jeopardize the continued existence of the species or cause the death of any individual of the species.
May Affect, Not Likely to Beneficially Affect	Beneficial impacts to individuals of a listed species or their habitats may be detectable, but would not be expected to be outside the natural range of variability or to cause long-term increases in native species populations, their habitats, or the natural processes sustaining them. Species viability and genetic variability would remain stable over the long term. Mortality or interference with activities necessary for survival can be expected on an occasional basis but will not permanently negate beneficial impacts.
May Affect, Likely to Adversely Affect	An individual or population of a listed species, or its critical habitat would be noticeably affected. The effect would have some long-term consequence to the individual, population, or habitat and would be difficult to mitigate.
May Affect, Likely to Beneficially Affect	Beneficial impacts to individuals of a listed species or their habitats would be detectable, and would be expected to be outside the natural range of variability and to result in long-term increases in native species' populations, their habitats, or the natural processes sustaining them. Ecosystem processes and species' habitat would be bolstered. Increases in mortality and/or interference with activities necessary for survival would be avoided.

## **Fish and Wildlife Species**

The United States Fish and Wildlife Service has identified six threatened species that may occur within the vicinity of the Coeur d'Alene Reservation. The following section assesses potential impacts to and potential adverse effects on each of these species, as required under Section 7 of the Endangered Species Act.

### **Impacts of All Alternatives**

**Gray Wolf (*Canis lupus*):** Although most of the Reservation would be considered low quality gray wolf habitat, the potential exists for some impacts to occur with Alternative D. This Alternative would increase human densities and associated road densities to a point where wolf-human interactions would be more likely.

The most likely scenario under this Alternative would be that wolves would avoid the Reservation altogether. Under the remaining Alternatives, population increases in the next 20 years would probably not be substantial enough to have an effect on the wolf population.

#### **Effects Calls**

Alternative A: No Effect

Alternative B: No Effect

Alternative C: No Effect

Alternative D: May Affect, Not Likely to Adversely Affect

**Bald Eagle (*Haliaeetus leucocephalus*):** The potential exists for some site specific disturbance of bald eagles under some of the Alternatives. As shoreline development around Coeur d'Alene Lake increases, disturbance of eagles from nesting, roosting and feeding areas will also increase. This is most likely to occur with Alternatives A, B and D. Alternative C would designate the Lake shoreline area as a Conservation land use area. This designation could actually increase availability of bald eagle habitat. Additional Riparian protection offered under Alternatives B and C may also provide roosting and nesting sites for eagles.

#### **Effects Calls**

Alternative A: May Affect, Not Likely to Adversely Affect

Alternative B: May Affect, Not Likely to Adversely Affect

Alternative C: May Affect, Likely to Beneficially Affect

Alternative D: May Affect, Likely to Adversely Affect

**Canada Lynx (*Lynx Canadensis*):** Due to the limited lynx habitat and low likelihood of lynx occurrence on the Reservation, the potential for negative effects to lynx is unlikely. Alternative D would increase human densities and associated road densities to the point that they may have adverse effects on any lynx present, or cause avoidance behaviors by wandering lynx.

### **Effects Calls**

Alternative A: No Effect

Alternative B: No Effect

Alternative C: No Effect

Alternative D: May Affect, Not Likely to Adversely Affect

***Bull Trout (Salvelinus confluentus)***: As shoreline development increases around the Lake, and timber and agricultural practices increase in the surrounding areas, sediment delivery into the tributary streams and Lake itself will increase. Sediment production activities are judged to not result in adverse affects for bull trout in tributary streams because the Reservation does not support a spawning or rearing population. Sediment delivered to the lake as a result of the Alternatives is not expected to exceed levels associated with sub-optimal lacustrine habitat conditions. There is a potential for an increase in incidental take of bull trout due to an increase in population that may be associated with Alternatives A and D. Exotic fish species will also continue to have detrimental effects on the bull trout populations such as direct competition for prey, unless steps are taken to manage their populations.

### **Effects Calls**

Alternative A: May Affect, Not Likely to Adversely Affect

Alternative B: May Affect, Not Likely to Beneficially Affect

Alternative C: May Affect, Likely to Beneficially Affect

Alternative D: May Affect, Likely to Adversely Affect

***Water howellia (Howellia aquatilis)***: There have been no known occurrences of water howellia within the Reservation, but potential habitat is suspected to occur. Occurrences within riparian areas would be protected by the Tribal buffer zone guidelines where they were implemented. Some potential loss could occur in wetland and riparian habitats that could possibly be lost to development under Alternative D.

### **Effects Calls**

Alternative A: No Effect

Alternative B: No Effect

Alternative C: No Effect

Alternative D: May Affect, Not Likely to Adversely Affect

***Ute ladies'-tresses (Spiranthes diluvialis)***: There have been no known occurrences of Ute ladies'-tresses within the Reservation, but potential habitat is suspected to occur. It is not likely that any of the alternatives would have an effect on this species, because it is strictly a submerged aquatic species. However, aquatic habitats could possibly be altered by an increase in human activities in these environments under Alternative D.

## Effects Calls

Alternative A: No Effect

Alternative B: No Effect

Alternative C: No Effect

Alternative D: May Affect, Not Likely to Adversely Affect

## Cumulative Effects

Changes in land use and corresponding loss of habitat over the past 120 or more years have already had moderate to major impacts across the regional landscape. Cumulative impacts to the species discussed above include impacts from agriculture, forestry, transportation, city and town development, scattered rural housing, impacts from area recreational activities, short-term maintenance projects, bridge replacements, and other ground disturbing projects. Foreseeable projects and planned actions in Alternatives A, B and C may impact, but are not likely to adversely impact any of the species. Overall, both beneficial and adverse cumulative impacts to listed fish and wildlife species are possible, depending on which alternative is implemented. Alternative C would result in a number of beneficial impact to listed wildlife species, and would have no adverse affects. Alternative D would potentially result in adverse impact to wildlife species and their habitats due to the amount of development projects and number of acres of habitat disturbance.

## Summary of Impacts

<i>Species</i>	<i>Alternative A</i>	<i>Alternative B</i>	<i>Alternative C</i>	<i>Alternative D</i>
Gray Wolf	No Effect	No Effect	No Effect	May Affect, Not Likely to Adversely Affect
Bald Eagle	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Adversely Affect	May Affect, Likely to Beneficially Affect	May Affect, Likely to Adversely Affect
Canada Lynx	No Effect	No Effect	No Effect	May Affect, Not Likely to Adversely Affect
Bull Trout	May Affect, Not Likely to Adversely Affect	May Affect, Not Likely to Beneficially Affect	May Affect, Likely to Beneficially Affect	May Affect, Likely to Adversely Affect
Water Howellia	No Effect	No Effect	No Effect	May Affect, Not Likely to Adversely Affect
Ute Ladies' -Tresses	No Effect	No Effect	No Effect	May Affect, Not Likely to Adversely Affect

## 4.4 Human Environment (Reservation)

This section documents the effects of implementation of the Alternatives on the human environment.

### 4.4.1: Agriculture

About 114,411 acres of Reservation forested lands supporting open forest, shrub and grassland vegetation has been cleared and converted to non-forest uses. Introduction of agriculture and modern development practices have reduced the amount of forest lands and other habitats on the Reservation.

#### Regulation and Policy

- \* Forest and Rangeland Renewable Resources Research Act
- \* Indian Agricultural Resource Management Act
- \* Coeur d'Alene Tribal Comprehensive Plan and related (in draft)
- \* Methodology

The assessment of impacts uses the general methodology described above and the resource specific information provided below. Available information was obtained through interdisciplinary team meetings and relevant literature from the EAP Assessment. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

#### Indicators:

- \* Changes in acreage of agricultural lands within the Reservation.

#### Impact Assessment

Negligible	No impact or beneficial impact over the long term to agriculture.
Minor	Impacts would be slight and noticeable but would not greatly alter agricultural lands. These slight changes would be considered mainly short-term.
Moderate	Impacts would be apparent and would alter agriculture on a scale of one hundred to several hundred acres. Some effects would be considered short-term but most would be considered long-term.
Major	Impacts would adversely affect agriculture on a scale of hundreds to thousands of acres. Most of the changes would be long-term.

**Impact Duration Definition:**

Short-term	Recovery in less than 2 years.
Long-term	No chance for recovery.

**Impacts of Alternative A—No Action**

Alternative A would allow for growth and development to continue at current rates without guidance from an IRMP. Agricultural lands would continue to be modified by development, and agricultural practices would continue across the landscape. Alternative A is expected to have a moderate impact on agricultural lands over the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative B—Preferred Alternative**

Alternative B would plan for agricultural development in suitable areas based on guidance from the IRMP. The IRMP would encourage the conversion of selected agricultural lands back to a more pre-settlement composition while maintaining agricultural practices on more productive land. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan and Coeur d'Alene Tribal Comprehensive (in draft) and Land Use plans (in draft) while working with other federal and private entities across the landscape to restore some agricultural areas back to forests. Alternative B is expected to have a moderate impact on agricultural lands over the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative C—Conservation Alternative**

Alternative C would work the hardest to contain growth and development except in areas considered suitable based on guidance from the IRMP. This IRMP alternative would encourage and promote a larger degree of conversion of agricultural lands back to a more pre-settlement composition. Alternative C is expected to have a moderate impact on agricultural lands over the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative D—Growth Alternative**

Alternative D would plan for growth and development to occur in all suitable and designated areas. This Alternative would not actively encourage the conversion of agricultural lands back to a more pre-settlement composition. This Alternative would encourage growth and development over thousands of acres to meet greater economic returns and would potentially result in large areas of agricultural lands being lost to housing, commercial and other types of development. Alternative D is expected to have a major impact on agricultural lands over the long-term based on this analysis and the analysis in the EAP Assessment.

**Cumulative Impacts**

Regardless of the Alternative selected, losses of agricultural lands are expected based on projects



already in the planning phase (Section 4.0). The number of acres affected and the intensity of effects would be different for all Alternatives. Alternative D would be expected to add a major cumulative impact if all elements of the Alternative are implemented. Alternatives A, B and C are expected to contribute a moderate cumulative impact if all elements of the Alternatives are implemented. The assessment is based on the potential changes in land use, on how much agricultural land is restored to pre-settlement conditions and how much of the riparian/wetland habitat is restored within active agricultural lands.

### **Mitigation and Monitoring**

The Tribal Natural Resource Department in cooperation with other entities will work to establish biodiversity strongholds and potential areas for restoration and enhancement and agricultural conversion. The implementation and monitoring plan is located in Appendix F.

### **Summary of Impacts**

Alternative A would have a moderate impact on agricultural lands due to unplanned development and potential conversion of agricultural lands back to forest lands based on current trends and without the IRMP for guidance. Alternatives B and C would also have a moderate impact on agricultural lands based on the two Alternatives' degree of proposed conversion of agricultural lands into developed or restored lands, respectively. Alternative D would have a major impact on agricultural lands based on its focus on development and growth over thousands of acres.

#### ***4.4.2: Development***

Roads and other urban areas cover an estimated 2,245 acres. Growth and associated development is mostly in rural areas, and affects most of the Reservation. Scattered unplanned development for industrial, commercial, residential, and community and government has led to declining environmental conditions, including degraded fisheries habitat and water quality (Coeur d'Alene Tribe 2000b). The current human impacts on the ecology of the Reservation are in some cases irreversible, resulting from population growth and development patterns. However, cooperative planning can retain ecological values across the landscape that are not only culturally significant to the Coeur d'Alene Tribe but also essential to the well being of all people.

### **Regulation and Policy**

- \* All applicable regulations and policy from Chapter 1 are needed for ground disturbing projects
- \* Federal Water Pollution Control Act (known as the Clean Water Act)
- \* Indian Land Consolidation Act
- \* Indian Religious Freedom Act
- \* National Pollutant Discharge Elimination System
- \* Encroachments (Tribal Ordinance)

- \* Coeur d'Alene Tribal Comprehensive Plan (in draft), Land Use Plan (in draft), Transportation Plan and related adopted plans

## Methodology

The assessment of impacts uses the general methodology described above and the resource specific information provided below. Available information was obtained through interdisciplinary team meetings and relevant literature and information from the EAP Assessment. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

## Indicators:

- \* Loss of natural environment to development.

## Impact Assessment

Negligible	No impact or beneficial impacts over the long term to development.
Minor	Impacts would be slight and noticeable, but would not alter or affect development on a large scale. These slight changes would be considered short-term.
Moderate	Impacts would be apparent and would alter development on a scale of hundreds of acres. Some impacts would be considered short-term but there would be also be long-term affects.
Major	Impacts on development would occur on a large scale (several hundred to thousands of acres). Most of the impacts would be long-term.

## Impact Duration Definition:

Short-term	Recovery in less than 2 years
Long-term	No chance for recovery.

## Impacts of Alternative A—No Action

Human population growth and development patterns are a primary cause of environmental stress throughout the world, and on the Reservation. All other sources of environmental stress are integrally linked to population growth. Increased human population, worldwide, drives the demand for goods and services produced on the Reservation. This is especially true for products, such as wheat, lumber and paper. In short, absent growth on the Reservation, there would still be an increasing demand for agricultural and forest products from the Reservation. In turn, these two categories of development have historically been the top contributors to changes in the Reservation ecosystem. Alternative A would allow for growth and development to continue at current rates

without guidance from an IRMP. Agricultural lands would continue to be modified and forestry practices largely uncoordinated across the landscape. Recreation expansion would continue to dominate areas around Coeur d'Alene Lake. Population growth will continue and require additional infrastructure including roads for transportation. Alternative A is expected to have a negligible impact on development over the long-term based on this analysis and the analysis in the EAP Assessment.

#### **Impacts of Alternative B—Preferred Alternative**

Alternative B would plan for growth and development to occur in suitable areas based on guidance from the IRMP. The IRMP would encourage the conversion of selected agricultural lands back to a more pre-settlement composition. The Tribe would encourage application of standards and guidelines from the Tribal Forest Plan while working with other federal and private entities across the landscape to preserve diversity. Recreation expansion would be discouraged in the majority of the area around Coeur d'Alene Lake. Development in designated areas would be encouraged to be compatible with maintenance of plant and animal diversity. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative B, new road construction and expansion would be discouraged in most areas that would be considered unsuitable or in conflict with ecological goals and objectives of habitat retention. If all elements of Alternative B are implemented, it is expected to have a moderate effect on development over the long-term based on this analysis and the analysis in the EAP Assessment.

#### **Impacts of Alternative C—Conservation Alternative**

Alternative C would work hardest to contain growth and development except in areas considered suitable based on guidance from the IRMP. This IRMP alternative would encourage and promote a larger degree of conversion of agricultural lands back to a more pre-settlement composition. The Tribe would encourage application of standards and guidelines from the Tribal Forest Plan while working with other federal and private entities across the landscape to preserve diversity. Recreation expansion would be discouraged in most areas around Coeur d'Alene Lake. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative C, new road construction and expansion would be discouraged in all areas that would be considered unsuitable or in conflict with biodiversity goals and objectives of habitat retention. If all elements of Alternative C are implemented, it is expected to have a major impact on development over the long-term based on this analysis and the analysis in the EAP Assessment.

#### **Impacts of Alternative D—Growth Alternative**

Alternative D would plan for growth and development to occur in all suitable areas based on guidance from the IRMP. This Alternative would not actively encourage the conversion of agricultural lands back to a more pre-settlement composition. This Alternative would encourage growth and development to meet greater economic returns. The Tribe would encourage application of standards and guidelines from the Tribal Forest Plan on Tribal lands and coordination would con-



Sunrise—Sub Agency, Plummer

tinue with other federal and private entities across the landscape to retain elements of diversity, but not as a priority. Recreation expansion would be accommodated in most areas around Coeur d’Alene Lake. Development would be encouraged to be compatible with maintenance of plant and animal diversity. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative D, new road construction and expansion would be allowed in all areas to accommodate growth and expansion. Maintaining and restoring biodiversity would be secondary to the priority of growth and development. Development in Alternative D is expected to have a negligible impact on development over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Cumulative Impacts**

Changes in land use and corresponding loss of biodiversity over the past 120 or more years have already had moderate to major impacts across the Reservation. Most of these land use changes have resulted from agriculture and timber management and not from commercial, industrial and governmental development. Regardless of the Alternative selected, losses of habitat, habitat fragmentation, and migration corridor loss of connectivity from agriculture, forestry, recreation, human

population growth, and roads is expected to continue based on projects already in the planning phase (Section 4.0). The intensity of effects and impact duration would be different for all Alternatives. Alternatives A and D would be expected to add negligible cumulative impacts on development if all elements of the Alternatives were implemented. Alternatives B and C are expected to contribute a moderate to major cumulative impact on development, respectively, if all elements of the Alternatives are implemented. The assessment is based on the expected growth and changes in land use described in the analysis of Alternatives A and D as opposed to containing growth and development described in Alternatives B and C.

### **Mitigation and Monitoring**

Monitoring for changes in the amount of development is detailed in Appendix F.

### **Summary of Impacts**

Alternative A would have a negligible impact on development based on current trends and without the IRMP for guidance. Alternatives B and C would have a moderate to major impact on development, respectively, based on the two Alternatives' degree of containing growth and development. Alternative D would have a negligible impact on development based on its focus on development and growth.

### **4.4.3: Energy**

Much of the wood and coal burning on the Reservation has been replaced by hydroelectric sources. However, wood remains a major energy source. Energy consumption, and associated impacts have increased on the Reservation, and in the Region.

### **Regulation and Policy**

- \* Federal Power Act
- \* Department of Energy Organization Act
- \* Federal Water Pollution Control Act (known as the Clean Water Act)
- \* Clean Air Act
- \* National Pollutant Discharge Elimination System
- \* Safe Drinking Water Act
- \* Tribal Firewood Cutting Ordinance

### **Methodology**

The assessment of impacts uses the general methodology described above and the resource specific information provided below. Available information was obtained through interdisciplinary team meetings and relevant literature from the EAP Assessment. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

**Indicators:**

\* Number of acres in use for energy transmission or development.

**Impact Assessment**

Negligible	No impact over the long term to energy development and transmission.
Minor	Impacts would be slight and noticeable but would not alter or affect energy development and transmission. These slight changes would be considered short-term.
Moderate	Impacts would be apparent and would alter energy development and transmission on a scale of hundreds of acres. Some impacts would be considered short-term and some would be considered long-term.
Major	Impacts would adversely affect energy development and transmission on a scale of several hundred to thousands of acres. Impacts would largely be long-term.

**Impact Duration Definition:**

Short-term	Recovery in less than 2 years
Long-term	No chance for recovery.

**Impacts of Alternative A—No Action**

Migratory salmon have been lost throughout the Hangman Creek watershed. Although habitat degradation is partly responsible for this loss, the hydroelectric system on the Columbia River has blocked fish passage to the Spokane River.

Residential wood burning on the Reservation impacts most of the study area. Stagnant smoky air is more of a problem in low-lying areas such as Plummer due to weather patterns in the fall and winter. Although emissions from the co-generation plant could be carried great distances, the effects are mainly localized.

Alternative A would allow for energy development and transmission to continue at current rates without guidance from an IRMP for suitability and compatibility with the natural environment. Alternative A is expected to have a negligible impact on energy development and transmission over the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative B—Preferred Alternative**

Alternative B would plan for energy production and transmission to occur in suitable areas based on guidance from the IRMP and would include appropriate types of energy sources. Population growth will continue and require additional energy needs, but under Alternative B, new expan-



sion would be discouraged in most areas that are unsuitable or in conflict with natural environment. Alternative B is expected to have a minor impact on energy development and transmission over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Impacts of Alternative C—Conservation Alternative**

Alternative C would more aggressively plan to contain energy production and transmission to areas considered suitable based on guidance from the IRMP. Population growth will continue and require additional sources for energy, but under Alternative C, new energy growth and expansion would be discouraged in all areas that are unsuitable or in conflict with biodiversity goals and objectives of habitat retention. Alternative C is expected to have a moderate impact on energy development and transmission over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Impacts of Alternative D—Growth Alternative**

Alternative D would plan for energy production and development to occur in all suitable areas based on guidance from the IRMP. This Alternative would encourage growth and development to meet greater economic returns. Population growth will continue at a more rapid pace and require additional energy sources and, under Alternative D, new energy construction and expansion would be encouraged in appropriate areas to accommodate growth and expansion. Alternative D is expected to have a negligible impact on energy development and transmission over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Cumulative Impacts**

Changes in land use and corresponding loss of habitat due to energy development and transmission over the past 120 or more years have already created moderate to major impacts across the Reservation. Regardless of the Alternative selected, losses of habitat, habitat fragmentation, and migration corridor loss of connectivity from agriculture, forestry, recreation, human population growth, and roads is expected based on projects already in the planning phase (Section 4.0). The intensity of effects and impact duration would be different for all Alternatives. Alternatives A and D would be expected to add a negligible cumulative impact to energy development and transmission if all elements of the Alternatives were implemented. Alternative B is expected to contribute minor impacts to energy development, and C is expected to contribute a moderate cumulative impact to energy if all elements of the Alternatives are implemented. The assessment is based on expected growth and changes in land use described in the analysis for Alternatives A and D as opposed to containing growth and development described in Alternatives B and C.

### **Mitigation and Monitoring**

The implementation and monitoring plan is located in Appendix F.

### Summary of Impacts

Alternatives A and D would have a negligible impact on energy based on current trends and without the IRMP for guidance. Alternatives B and C would have a minor and moderate impact on energy, respectively, based on the two Alternatives' degree of containing energy growth and development.

#### ***4.4.4: Environmental Health***

Population on the Reservation is expected to continue to increase in the future. If population increases, there will be greater need for sanitation and environmental health programs.

### Regulation and Policy

- \* Tribal Environmental Health Program

### Methodology

Available information was obtained through interdisciplinary team meetings and relevant literature from the EAP Assessment. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

### Indicators:

- \* Continuation and expansion of the Tribal Environmental Health Program.
- \* Improvement in Reservation morbidity and mortality statistics affected by on-going environmental health programs.
- \* Sustained improvement in mean inspection scores for all types of facilities undergoing routine environmental health and safety inspections.
- \* Development of baseline statistical data for all environmental health core program areas.
- \* Reduction in preventable injuries attributable to chemical and/or physical hazards.
- \* Improvement in chemical and bacteriological water quality for individual water systems.
- \* Clean up of existing open dumpsites and monitoring of potentially hazardous abandoned landfill sites.
- \* Increased public/environmental health awareness resulting from health education and community outreach activities.

### Impact Assessment

Negligible	No impact or beneficial impacts on environmental health trends.
Minor	Impacts would be slight and noticeable but would not negatively alter or impact environmental health trends.

Moderate	Impacts would be apparent and would cause small negative changes in environmental health trends.
Major	Impacts would cause large negative changes in environmental health trends.

**Impacts to All Alternatives**

All Alternatives would support assisting in the proper design, construction and operation of schools, day cares, food service facilities, celebrations, swimming pools, private water and septic systems, solid waste facilities and community social facilities for optimal public health and safety. All Alternatives would strive to meet the goals and objectives of the Tribe’s Environmental Health Plan. Implementation may be more difficult in some Alternatives than in others. All Alternatives would have a negligible (beneficial) impact on environmental health. However, Alternatives A and D would potentially require a number of additional inspections to be conducted annually.

**Cumulative Impacts**

No cumulative impacts are anticipated.

**Mitigation and Monitoring**

Continuation of the monitoring programs for food services, water recreation facilities, schools, day care facilities, community centers, celebrations, public water and private water systems, public buildings, and youth facilities would continue for all Alternatives.

**Summary of Impacts**

All Alternatives would have a negligible (beneficial) impact on environmental health.

**4.4.5: Housing**

The need for housing will continue across the Reservation. This assessment will measure the impact of the Alternatives on housing.

**Regulation and Policy**

- \* All applicable regulations and policy from Chapter 1 are needed for ground disturbing projects
- \* Coeur d’Alene Tribal Housing Authority Plan
- \* Coeur d’Alene Tribal Comprehensive Plan (in draft) and related adopted plans

**Methodology**

Available information was obtained through interdisciplinary team meetings and relevant literature from the EAP Assessment. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

**Indicators:**

- \* The number, type and location of new houses and subdivisions.

**Impact Assessment**

Negligible	No impact or beneficial impacts over the long term to housing development.
Minor	Impacts to housing would be slight and noticeable but would not alter housing on a large scale. These slight changes would be considered short-term.
Moderate	Impacts would be apparent and would alter housing development on a scale of hundreds of acres. Some impacts would be considered short-term and some would be long-term.
Major	Impacts would alter housing development on a scale of several hundred to thousands of acres. Impacts would mainly be long-term.

**Impact Duration Definition:**

Short-term	Recovery in less than 2 years
Long-term	No chance for recovery.

**Impacts of Alternative A—No Action**

Alternative A would allow for growth and development to continue at current rates without guidance from an IRMP. Alternative A would be expected to have a negligible impact on housing over the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative B—Preferred Alternative**

Alternative B would plan for growth and development to occur in suitable areas based on guidance from the IRMP. Alternative B is expected to have a moderate impact on housing over the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative C—Conservation Alternative**

Alternative C would more aggressively plan limitations of growth and development except in areas considered suitable based on guidance from the IRMP. Alternative C is expected to have a major impact on housing over the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative D—Growth Alternative**

Alternative D would plan for growth and development to occur in all suitable areas based on guidance from the IRMP. Alternative D is expected to have a negligible impact on housing over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Cumulative Impacts**

Changes in land use and corresponding loss of habitat due to housing development over the past 120 or more years have already had major impacts across the Reservation. Regardless of the Alternative selected, human population growth and the need for housing is expected based on projects already in the planning phase (Section 4.0). The intensity of effects and impact duration would be different for all Alternatives. Alternatives A and D would be expected to add a negligible cumulative impact if all elements of the Alternatives were implemented. Alternatives B and C are expected to contribute a moderate to major cumulative impact, respectively, if all elements of the Alternatives are implemented.

### **Mitigation and Monitoring**

The implementation and monitoring plan is located in Appendix F.

### **Summary of Impacts**

Alternatives A and D would have negligible impacts on housing based on current trends. Alternatives B and C would have a moderate to major impact on housing, respectively, based on the two Alternatives' degree of containing growth and development.

### **4.4.6: Infrastructure**

Human population growth can be managed but not eliminated on the Reservation. With population growth comes the need for utilities, roads, drinking water and wastewater facilities, and other services. This assessment will determine how each alternative impacts infrastructure development.

### **Regulation and Policy**

- \* All applicable regulations and policy from Chapter 1 are needed for ground disturbing projects
- \* Coeur d'Alene Tribal Comprehensive Plan (in draft), Tribal Transportation Plan and related plans

### **Methodology**

Available information was obtained through interdisciplinary team meetings and relevant literature from the EAP Assessment. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

### **Indicators:**

- \* Number of acres used for infrastructure.

### **Impact Assessment**

Negligible	No impact over the long term to infrastructure development.
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Minor	Impacts would be slight and noticeable but would not affect infrastructure development on a large scale. These slight changes would be considered short-term.
Moderate	Impacts would be apparent and would affect infrastructure development on a scale of hundreds of acres. Some impacts would be considered short-term and some would be long-term.
Major	Impacts would affect infrastructure development on a scale of several hundred to thousands of acres and most impacts would be long-term.

#### **Impact Duration Definition:**

Short-term	Recovery in less than 2 years
Long-term	No chance for recovery.

#### **Impacts of Alternative A—No Action**

Alternative A would allow for growth and development to continue at current rates without guidance from an IRMP. Population growth will continue and require additional infrastructure including roads for transportation. Alternative A is expected to have a negligible impact on infrastructure development over the long-term based on this analysis and the analysis in the EAP Assessment.

#### **Impacts of Alternative B—Preferred Alternative**

Alternative B would plan for growth and development to occur in suitable areas based on guidance from the IRMP. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative B, new road construction and expansion would be discouraged in most areas that are considered unsuitable or in conflict with resource goals and objectives of habitat retention. Alternative B would be expected to have a moderate impact on infrastructure development over the long-term based on this analysis and the analysis in the EAP Assessment.

#### **Impacts of Alternative C—Conservation Alternative**

Alternative C would more aggressively plan to contain growth and development except in areas considered suitable based on guidance from the IRMP. Recreation expansion would be discouraged in most areas around Coeur d'Alene Lake. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative C, new road construction and expansion would be discouraged in all areas that are unsuitable or in conflict with resource goals and objectives of habitat retention. Alternative C would be expected to have a major impact on infrastructure development over the long-term based on this analysis and the analysis in the EAP Assessment.



### **Impacts of Alternative D—Growth Alternative**

Alternative D would plan for growth and development to occur in all suitable areas based on guidance from the IRMP. Recreation expansion would be accommodated in most areas around Coeur d’Alene Lake. Development would be encouraged to be compatible with maintenance of plant and animal diversity. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative D, new road construction and expansion would be allowed in virtually all areas to accommodate growth and expansion. Maintaining native species biodiversity would be a secondary priority to growth and development. Alternative D is expected to have a negligible impact on infrastructure development over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Cumulative Impacts**

Changes in land use and corresponding loss of habitat from infrastructure development over the past 120 or more years have already had major impacts across the Reservation. Regardless of the Alternative selected, human population growth requiring infrastructure expansion is expected based on projects already in the planning phase (Section 4.0). The intensity of effects and impact duration would be different for all Alternatives. Alternatives A and D would be expected to add a negligible cumulative impact to infrastructure development if all elements of the Alternatives were implemented. Alternatives B and C are expected to contribute a moderate to major cumulative impact, respectively, if all elements of the Alternatives are implemented. The assessment is based on expected development and changes in land use as described in the analyses of Alternatives A and D as opposed to containing growth and development for purposes of infrastructure development as described in Alternatives B and C.

### **Mitigation and Monitoring**

The implementation and monitoring plan is located in Appendix F.

### **Summary of Impacts**

Alternatives A and D would have negligible impacts on infrastructure development based on current trends. Alternatives B and C would have moderate to major impacts on infrastructure development, respectively, based on the two Alternatives’ degree of containing growth and development.

#### ***4.5.8: Pesticides***

Use of agricultural chemicals did not exist prior to European settlement. Herbicides, fertilizers and insecticides are used on most, if not all, of the estimated 135,828 acres of agricultural land each year. Chemicals are used on about 100 acres of forest land each year. The extent of domestic use is unknown, but occurs throughout the Reservation annually.

Potential impacts exist throughout the Reservation, wherever chemicals are used. No studies of impacts of chemicals on ecological elements have been completed that are specific to the Reservation. Impacts to exposed species are usually quite severe, causing death or significant changes

in growth. Toxicity and frequent use make chemicals an inherent threat. Certain insecticides, herbicides and fertilizers, known to be used on the Reservation, can be toxic to fish, wildlife, aquatic invertebrates, birds, unintended plants and insects and other species.

### **Regulation and Policy**

- \* Federal Insecticide, Fungicide and Rodenticide Act
- \* National Pollutant Discharge Elimination System
- \* Toxic Substances and Control Act

### **Methodology**

Available information was obtained through interdisciplinary team meetings and relevant literature from the EAP Assessment. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

### **Indicators:**

- \* The extent or area of pesticides use.
- \* The type and effects of pesticides used.

### **Impact Assessment**

Negligible	No decrease over the long term in pesticides use.
Minor	Impacts to pesticides would be a slight and noticeable decrease in use but would not affect use on a large scale. These slight changes would be considered short-term decreases.
Moderate	Impacts to pesticides would be apparent and would decrease use on hundreds of acres. Some decreases would be considered short-term and some would be long-term.
Major	Impacts to pesticides would decrease use on several hundred to thousands of acres and most decreases would be considered long-term.

### **Impact Duration Definition:**

Short-term	Recovery in less than 2 years
Long-term	No chance for recovery.

### **Impacts of Alternative A—No Action**

Adverse effects of herbicides on agricultural lands are primarily associated with off-site transport through drift, runoff, or leaching. Drift can occur by wind action during aerial or ground applica-

tions of spray solutions. It can also occur by temperature-induced volatilization (vaporization), as can happen with certain formulations of 2,4-D or MCPA (Rhone-Poulenc 1994). Damage or death of non-target plant species can occur if exposed. Some herbicides such as dicamba, clopyralid, MCPA, and atrazine can leach through the soil. Bromoxynil is highly toxic to pheasants and may have serious local adverse effects on these or other bird species which occur in agricultural areas.

Genetic resistance of weed species to a given herbicide could develop if the herbicide, or one with the same mode of action, is used exclusively over extended periods of time, thus reducing the effectiveness of that herbicide (DuPont 1995; DuPont 1996B)

Alternative A would allow for the continued use of pesticides at current rates without guidance from an IRMP. Agricultural and forested lands would continue to be the main areas where pesticides are utilized. Recreation-related development would continue around Coeur d'Alene Lake, expanding areas of noxious weeds that are currently treated mainly by pesticides. Population growth will also continue in other areas of the Reservation, facilitating the expansion of non-native species. Alternative A is expected to result in a negligible impact (slight or no decrease in use) on pesticides use over the long-term based on this analysis and the analysis in the EAP Assessment.

#### **Impacts of Alternative B—Preferred Alternative**

The IRMP would encourage the conversion of selected agricultural lands back to a more pre-settlement composition requiring less use of pesticides. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan while working with other federal and private entities across the landscape to decrease the use of these types of chemicals. Recreation expansion would be discouraged in areas around Coeur d'Alene Lake, decreasing potential for spread of non-native species. Alternative B is expected to result in moderate impacts (medium decrease) to pesticides use over the long-term based on this analysis and the analysis in the EAP Assessment.

#### **Impacts of Alternative C—Conservation Alternative**

This IRMP alternative would encourage and promote a larger degree of conversion of agricultural lands back to a more pre-settlement composition lessening the need for pesticides or chemicals. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan while working with other federal and private entities across the landscape to decrease the use of pesticides. Recreation expansion would be discouraged in most areas around Coeur d'Alene Lake. Alternative C is expected to result in major impacts (large decrease) to pesticides use over the long-term based on this analysis and the analysis in the EAP Assessment.

#### **Impacts of Alternative D—Growth Alternative**

This Alternative would not actively encourage the conversion of agricultural lands back to a more pre-settlement composition. This Alternative would encourage growth and development to meet greater economic returns. The Tribe would encourage application of standards and guidelines from the Tribal Forest Management Plan and coordination would continue with other federal and private entities across the landscape to retain elements of diversity, but not as a priority. Recreation

expansion would be accommodated in most areas around Coeur d'Alene Lake. Alternative D is expected to result in negligible impacts (slight or no decrease) to pesticides use over the long-term based on this analysis and the analysis in the EAP Assessment.

### **Cumulative Impacts**

Changes in land use and the use of pesticides over the past 50 or more years have already had large impacts on natural resources across the Reservation. However, there has been a minimal amount of effort to decrease use of pesticides. Regardless of the Alternative selected, pesticides and chemicals will most likely continue to be used for agriculture, forestry, weed control, water and sewer, and energy production contributing to the overall cumulative impact of pesticides. The intensity of effects and impact duration would be different for all Alternatives. Alternatives A and D would be expected to result in a negligible decrease in pesticides use and, therefore, add a negligible cumulative impact if all elements of the Alternatives were implemented. Alternatives B and C are expected to contribute a moderate to major cumulative impact, respectively, to pesticides use if all elements of the Alternatives are implemented.

### **Mitigation and Monitoring**

The Natural Resource Department would begin coordination with landowners to develop strategies to decrease pesticides use.

### **Summary of Impacts**

Alternatives A and D would have a negligible impact on pesticides use based on current trends. Alternatives B and C would have moderate and major impacts on pesticides use, respectively, based on the two Alternatives' degree of containing growth and development.

### ***4.4.9: Recreation***

To varying degrees, management actions take into consideration the balance between resource conservation and protection with the needs of a growing recreation population. This analysis identifies indicators for change to the recreation resource and activities of concern. Impacts are measured by quantifying the degree of change that would result from proposed management actions to indicators of concern.

### **Regulation and Policy**

- \* Recreation and Public Purposes Act
- \* Coeur d'Alene Tribal Comprehensive Plan (in draft) and related plans
- \* On-Reservation Hunting, Fishing & Trapping
- \* Off-Reservation Hunting, Fishing and Trapping
- \* Boating on Tribal Waters
- \* Encroachments



Westslope Cutthroat Trout and Richard Allen

### Methodology

Available information was obtained through interdisciplinary team meetings, relevant literature and from the EAP Assessment. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

### Indicators:

- \* Changes in acreages and number of developed recreation and water recreation facilities and locations.

### Impact Assessment

Negligible	No limit on the acreage or number of new recreation sites.
Minor	Slight limitations on the acreage or number of new recreation sites.
Moderate	Consistent limitations on the acreage or number of new recreation sites.
Major	Severe limits on the acreage or number of new recreation sites.

**Impact Duration Definition:**

Short-term	Recovery in less than 2 years
Long-term	No chance for recovery.

**Impacts of Alternative A—No Action**

Alternative A would allow for growth and development to continue at current rates without guidance from an IRMP. Development would continue to increase in areas around Coeur d'Alene Lake. Recreational demand is expected to increase as population in the region grows. Alternative A would expect negligible impact on recreation, based on the increases in acreage or recreation site development over the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative B—Preferred Alternative**

Alternative B would plan for growth and development to occur in suitable areas based on guidance from the IRMP. Recreation expansion would be discouraged in most areas around Coeur d'Alene Lake. Recreation-related growth would be designed to be consistent with the maintenance of plant and animal diversity. Alternative B is expected to discourage recreational growth where not compatible with resource goals. Alternative B is expected to have a moderate impact on recreation, based on the expected increases in acreage or recreation site development over the long-term based on this analysis and the analysis in the EAP.

**Impacts of Alternative C—Conservation Alternative**

Alternative C would work hardest to contain growth and development except in areas considered suitable based on guidance from the IRMP. Recreation expansion would be discouraged in almost all areas around Coeur d'Alene Lake. Alternative C is expected to have a major impact on recreation due to the intention to allow for small increases in acreage or recreation site development over the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative D—Growth Alternative**

Alternative D would plan for growth and development to occur in all suitable areas based on guidance from the IRMP. Maintaining native species diversity would be a secondary priority to recreational growth and development. Alternative D is expected to have a negligible effect on recreation due to the expected expansion and development of recreation sites over the long-term based on this analysis and the analysis in the EAP Assessment.

**Cumulative Impacts**

Changes in land use and corresponding loss of habitat from recreational development over the past 120 or more years have already had moderate impacts across the Reservation. Regardless of the Alternative selected, demand for recreational activities and sites will continue based on human pop-



ulation growth over the entire Coeur d'Alene Basin. However, the intensity of effects and impact duration would be different for all Alternatives. Alternatives A and D would be expected to add a moderate to major cumulative impact to recreation, respectively, if all elements of the Alternatives were implemented. Alternatives B and C are expected to contribute a minor to negligible cumulative impact to recreation, respectively, if all elements of the Alternatives are implemented.

### **Mitigation and Monitoring**

The implementation and monitoring plan for recreation is located in Appendix F.

### **Summary of Impacts**

Alternative A would have a negligible impact on recreation based on current growth trends and without the IRMP for guidance. Alternatives B and C would have a moderate and major impact on recreation, respectively, based on the two Alternatives' degree of containing development. Alternative D would have a negligible impact on recreation based on its focus on development.

#### ***4.4.10: Solid and Hazardous Waste***

Solid and Hazardous Waste elements are the same for all Alternatives being considered in this Draft Programmatic Environmental Impact Statement. All Alternatives will have a beneficial impact on solid and hazardous waste issues on the Reservation due to the goals that are common to all Alternatives. All Alternatives have goals in place to decrease impacts of solid and hazardous waste. No additional impacts will be added to existing cumulative impacts by the Alternatives.

#### **Indicators:**

- \* Amount of solid waste generated on the Reservation.
- \* Amount of hazardous materials stored on or transported through the Reservation.

As previously noted, this document does not assess the impact of historic mining and/or milling activities on or near the Coeur d'Alene Reservation or the Coeur d'Alene River. The Natural Resource Damage Assessment being undertaken by the Tribe and the United States is addressing mining- and/or milling-related resource impacts independent of this DPEIS.

The implementation and monitoring plan is contained in Appendix F.

#### ***4.4.11: Land Use***

Implementation of the IRMP would result in recommendations for changes in land use across the Reservation (except in Alternative A, No Action). These changes would vary from Alternative to Alternative and would affect land uses of prime farmland, special management, mature timber, recreation, material sites, commercial expansion, communities and residences, and utilities in varying degrees. For the purpose of this assessment the degree to which each of the Alternatives affects the natural environment from land use changes will be assessed. The proposed land use recommendations are included by Alternative in Table 4.4.11.1 below.

**Table 4.4.11.1 Land Management Recommendations (in acres)**

<i>Land Management Recommendation</i>	<i>Alternative A No Action</i>	<i>Alternative B Preferred</i>	<i>Alternative C Conservation</i>	<i>Alternative D Growth</i>
LMR1 DEVELOPMENT	0	11,136	5,401	55,909
LMR2 CONSERVATION	0	76,149	172,502	9,215
LMR3 RURAL	0	61,123	0	4,808
LMR4 RECREATION	0	0	0	50,953
LMR5 AGRICUTURE	0	92,565	62,104	72,791
LMR6 FOREST	0	95,558	96,569	123,634

**Regulation and Policy**

- \* Indian Land Consolidation Act
- \* Land Conservation and Restoration
- \* Indian Religious Freedom Act
- \* Recreation and Public Purposes Act
- \* Coeur d'Alene Tribal Comprehensive Plan (in draft), Tribal Land Use Plan (in draft) and related Tribal plans

**Methodology**

The assessment of impacts uses the general methodology below. Available information was obtained through interdisciplinary team meetings, relevant literature from the EAP Assessment and from other sources regarding growth and retention of the rural environment. The intensity and duration of impacts are described in the analysis below using the following criteria and definitions.

**Indicators:**

- \* Changes in land use from current land use.

**Impact Assessment**

Negligible	Little or no change to current land use would occur over the short- and long-term.
Minor	Impacts on land use would result from slight and noticeable changes but would not alter or affect land use on a large scale over the short- and long-term.
Moderate	Impacts on land use would be apparent so that changes in land use would occur on a scale of hundreds of acres over the short- and long-term.
Major	Impacts on land use would be great and would change land use on a scale of several hundred to thousands of acres over the long-term.

**Impact Duration Definition:**

Short-term	20 years or less.
Long-term	More than 20 years.

**Impacts of Alternative A—No Action**

Alternative A would allow for development to occur anywhere on the Reservation at current rates without guidance from an IRMP. Land use change would be expected based upon growth trends, especially in the northern part of the Reservation, around the Lake and along the Highway 95 corridor. With land use largely unplanned, Alternative A would be expected to result in moderate land use changes in the short-term and major land use changes in the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative B—Preferred Alternative**

Alternative B would plan for growth and development to occur in suitable areas based on guidance from the IRMP. The IRMP would encourage the conversion of agricultural lands back to a more pre-settlement composition. Forestry practices would apply standards and guidelines from the Tribal Forest Plan while working with other federal and private entities across the landscape to preserve diversity. Development would be discouraged in most areas around Coeur d'Alene Lake. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative B, new road construction and expansion would be discouraged in most areas that are unsuitable or in conflict with biodiversity goals and objectives of habitat retention. Alternative B is expected to result in moderate impacts on existing land use over the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative C—Conservation Alternative**

Alternative C would more aggressively plan limitations of growth and development except in areas considered suitable based on guidance from the IRMP. This IRMP alternative would encourage and promote a larger degree of conversion of agricultural lands back to a more pre-settlement composition. Forestry practices would apply standards and guidelines from the Tribal Forest Plan while working with other federal and private entities across the landscape to preserve diversity. Development would be discouraged in areas around Coeur d'Alene Lake. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative C, new road construction and expansion would be discouraged in all areas that are unsuitable or in conflict with biodiversity goals and objectives of habitat retention. Alternative C is expected to have a minor impact on existing land use over the long-term based on this analysis and the analysis in the EAP Assessment.

**Impacts of Alternative D—Growth Alternative**

Alternative D would plan for growth and development to occur in all suitable areas based on guidance from the IRMP. This Alternative would not actively encourage the conversion of agricul-

tural lands back to a more pre-settlement composition. This Alternative would encourage growth and development to meet greater economic returns. Forestry practices would apply standards and guidelines from the Tribal Forest Plan on Tribal lands and coordination would continue with other federal and private entities across the landscape to retain elements of diversity, but not as a priority. Recreation expansion would be accommodated in most areas around Coeur d'Alene Lake. Population growth will continue and require additional infrastructure including roads for transportation, but under Alternative D, new road construction and expansion would be allowed in all areas to accommodate growth and expansion. Maintenance of native species biodiversity would be a secondary priority to growth and development. Alternative D is expected to result in major changes in land use over the short- and long-term based on this analysis and the analysis in the EAP Assessment.

### **Cumulative Impacts**

Changes in land use and corresponding loss of habitat over the past 120 or more years have already had major impacts across the Reservation. Regardless of the Alternative selected, losses of habitat, habitat fragmentation, and migration corridor loss of connectivity from agriculture, forestry, recreation, human population growth, and energy production is expected based on projects already in the planning phase (Section 4.0). The intensity of effects and impact duration would be different for all Alternatives. Alternative A would be expected to add a moderate short-term and major long-term cumulative impact to land use if all elements of the Alternative were implemented. Alternatives B and C would be expected to add a moderate and minor cumulative impact to land use, respectively, if all elements of the Alternatives were implemented. Alternative D would be expected to add a major impact to existing land use if all elements of the Alternative were implemented. The assessment is based on expected land use changes described in the analysis of Alternatives A and D as opposed to containing development described in Alternatives B and C.

### **Mitigation and Monitoring**

The implementation and monitoring plan is located in Appendix F.

### **Summary of Impacts**

Alternative A would have a moderate impact in the short-term and major impacts in the long-term, while Alternative D would have a major impact on land use in the short- and long-term. Alternatives B and C would have a moderate and minor impact on land use, respectively, based on the two Alternatives' degree of containing development.

#### ***4.4.12: Social and Economics***

Many of the threats to the Reservation's natural, social, and cultural resources are associated with the human activity taking place on the Reservation, especially that related to economic activity. For that reason, efforts to manage and reduce environmental threats are likely to have socioeconomic repercussions that also need to be analyzed.

Because the economy of the Coeur d'Alene Reservation is in transition from one that historically relied on natural resource activities (logging, farming, subsistence), it is important to discuss the impacts of the various alternatives in the context of that evolving economy. That changing economy was summarized in Chapter 3 of this document. In addition, other Tribal documents lay the basis for this discussion of impacts. These include the EAP Assessment's definition and discussion of quality of life, the Coeur d'Alene Tribal Comprehensive Plan (in draft), and the Tribal Economic Development Plan.

The discussion of socioeconomic impacts is complicated by the fact that little data is available on one important part of the economy, namely the non-market, Tribal subsistence sector. This sector of the economy is of extreme importance to the Coeur d'Alene Tribe because it is inseparable from the Tribe's culture, including moral, ethical, and religious values, and quality of life. To most residents who are not Tribal members, natural landscapes that still have the integrity to support these Tribal cultural subsistence resources are likely to be evaluated only for their value for recreation, open space, or scenic beauty. They are unlikely to be seen as central to socioeconomic well-being. To Tribal members these subsistence resources are not just aesthetic characteristics of the quality of life, but are vital to the future of the Tribe and the survival of its Tribal culture and identity. Changes taking place on the Reservation, largely driven by human settlement and economic activity, have been degrading the subsistence potential on the Reservation, threatening the continued viability of those Tribal cultural economic activities. One purpose of the Integrated Resource Management Plan is, to the extent possible, to reduce that threat to and reverse that degradation of Reservation subsistence opportunities.

## **Methodology**

In evaluating the socioeconomic impacts of the four alternatives data from the 2000 Census and the quality of life information contained in the EAP Assessment was used. In addition we draw on the conventional tools of economic analysis. The latter include being careful to focus on changes in economic well-being separately from quantitative expansion of the economy, distinguishing how economic growth may affect groups differently, being careful to geographically define the "local economy" so that commuting to work and shopping are accounted for, and recognizing the open character of the local economy.

## **Indicators**

Change in the five quality of life criteria:

- \* economic and subsistence
- \* spiritual / moral
- \* aesthetics
- \* community well-being
- \* personal well-being

Also:

- \* Changes in rural character of the quality of life.
- \* Change and composition of population.
- \* Change, quality, and distribution of employment opportunities.
- \* Change and distribution of real personal income.

## **Impact Assessment**

Negligible:	No impact or change to the current quality of life or economic indicators. Current trends would continue with only short-term impact. Long-term changes in quality of life and economic indicators would be small and offsetting so that no change in socioeconomic well-being is experienced by residents.
Minor:	Quality of life and the economic indicators will change in observable ways but those changes will be small and varied enough so that the impact on the overall socioeconomic well-being actually experienced by residents is within the normal range of variation that residents expect. No long-term trends are initiated that would carry well-being outside of that normal range of experience.
Moderate:	Quality of life and the economic indicators will change in ways that raise concern among residents. Long-term trends threatening future well-being are becoming established. Individual changes in particular socioeconomic characteristics are of sufficient size to raise questions about overall well-being. The impacts, although distressing, do not suggest that quality of life and economic viability on the Reservation are threatened. A positive moderate impact would involve significant improvements in well-being on a scale that would be within the range of that residents foresaw as possible or even expected.
Major:	Quality of life and the economic indicators will change so significantly that the viability of the Reservation as a place to reside will be questioned by a significant number of residents. Long-term trends will be established that suggest ongoing deterioration in socioeconomic well-being in the future. These impacts and trends will be outside the range that many residents consider acceptable. A major positive impact would involve successful enhancement of the most important elements of the Reservation's quality of life, reversing the trends that have been undermining those high priority qualities.



**Impact duration Definition:**

Short-term:	Recovery in less than 2 years.
Long-term:	Change appears permanent; little chance of recovery.

**Impacts of Alternative A—No Action**

Under the no action alternative socioeconomic trends would continue unmodified by new policies or planning. With the extension of the four-lane highway onto the Reservation this is likely to mean more socioeconomic spillover from the greater Coeur d’Alene urban area. Because that urban area is one of the fastest growing in the nation, population growth is likely to accelerate on the Reservation. That faster growing population will attract convenience retail and service businesses as well as a mix of self-employed proprietorships.

With no Integrated Resource Management Planning process in place, this will put pressure on and contribute to the deterioration of many of the Reservation’s more important environmental resources: natural landscapes, open space, Tribal cultural sites, wildlife habitat, Coeur d’Alene Lake, water and air quality, etc.

Because most of the new residents are likely to be economically based in the Coeur d’Alene urban area, they are unlikely to be Tribal members or Native Americans for whom the Reservation is a homeland. Only modest local economic activity will be associated with them, the most important of which is likely to be construction.

The changes that have taken place in the Coeur d’Alene and Spokane Valley urban and suburban areas provide a good forecast of the changes that can be expected in the northern part of the Reservation. These changes are likely to be major and of long-term duration.

Offsetting, to a certain extent, the decline in quality of life on the Reservation will be a larger number of employment and income opportunities. The gross volume of economic activity will expand. Existing residents will be able to compete with other commuting workers for these economic opportunities. To the extent that existing residents have been disadvantaged in this competition in the past, as evidenced by lower pay and higher unemployment, this is unlikely to change. Current economic gaps between Native Americans and non-Indians on the Reservation are unlikely to narrow. The level of pay is not likely to increase because of the ready supply of workers in the surrounding area. Rising land prices will tend to favor high income households over lower income households as housing costs and cost of living rise.

If Coeur d’Alene and Spokane Valley growth extends south onto the Reservation, that part of the Reservation may become indistinguishable from the suburban and exurban areas now found in those areas. The distinct characteristics of the Reservation could be lost. An example of this can be found in the density of settlement as measured by the number of acres of Reservation land per existing structure. GIS sampling of various areas of the Reservation indicates that there are currently about 58 acres for each existing structure. On 75 percent of the Reservation land area there are 30 to 40 acres per structure. Although this density of settlement is nowhere near “suburban” in character, it is far removed from a rural definition of 80 to 160 acres per structure. Ma-

major population growth that is spread over the entire Reservation could dramatically increase settlement densities, further undermining the rural character of the Reservation.

For the Coeur d'Alene Tribe, these ongoing changes would not represent just the loss of rural amenities. The ongoing suburban and exurban sprawl, loss of wildlife habitat and fisheries, increased road densities, higher levels of air and water pollution, and unregulated recreational use of Coeur d'Alene Lake would go the continued loss of Tribal cultural subsistence resources, the aboriginal character of the landscape, and agricultural traditions. This would have profound cultural and spiritual impacts.

For that reason, Alternative A will have major, long-term impacts at least on the northwestern portion of the Reservation, along the entire shoreline of Coeur d'Alene Lake, and, possibly, on most of the Reservation. Over the next 20 years, however, it appears unlikely that such intense population sprawl will affect the southwestern portion of the Reservation that is adjacent to Washington's Palouse Prairie. Since it is likely that the southern third of the Reservation would not be heavily impacted by this alternative, the overall long-term impact is classified as moderately negative.

**Table 4.4.12.1 Alternative A Impacts on Quality of Life Criteria**

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*Economic & Subsistence*

Moderate damage to subsistence resources. Minor declines in fairness and equity.  
Minor expansion in ability to earn a living.

*Spiritual / Moral*

Moderate damage to culture, traditions, and religion.  
Minor improvement in freedom to make private choices.

*Aesthetics*

Moderate damage to the recreation, natural beauty; open space.

*Community Well-Being*

Moderate damage to future generations, cultural diversity, and land integrity.

*Personal Well-Being*

Minor improvements in income. Minor threats to health and peace of mind.

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**Impacts of Alternative B—Preferred Alternative**

Under the Preferred Alternative, public policy built around an Integrated Resource Planning Process would seek to manage growth and change so as to maximize the benefits from moderate economic development while minimizing the costs. Much damage that is done to the social, cultural, and natural environments is unintentional. It is an unfortunate byproduct of a beneficial activity. Usually the problem is that the beneficiary of an action is not held responsible for some of the im-

portant costs associated with that action. As a result, the person making the decisions and getting the benefits is able to ignore important costs.

To the extent that public policy can either hold the person causing the damage responsible for the damage or forbid actions when there are significant unmitigated costs, there can be significant gains in well-being for residents. They get the benefits of well-designed and sited projects while avoiding the costs. Projects with very low value but quite high costs can be avoided and those with very high benefits but relatively low costs can be pursued.

The Preferred Alternative seeks to strike this balance by guiding human activities on the Reservation to appropriate sites and by guiding the choice of technologies deployed towards those that do the least damage to other valuable Reservation resources.

The Preferred Alternative would seek to limit dense human settlement to about three percent of the Reservation's land area, in areas immediately adjacent to existing urban settlements. Residential and commercial development and the infrastructure supporting them would be discouraged on most of the Reservation's natural landscapes. In addition, the Preferred Alternative would not promote the development of widespread commercially-supported recreation activities on the Reservation. This is not to say that opportunities for dispersed subsistence and outdoor recreation activities would be reduced for residents. They would not; they would be maintained and expanded by active efforts to protect the Reservation's natural landscape and Tribal cultural sites. The Tribe would develop particular recreational facilities, but the Reservation would not be commercially developed for recreation on a broad scale.

The net impact of the Preferred Alternative on the level of the economic indicators may be negative compared to the No Action Alternative, reducing population, employment, and income growth somewhat compared to what it otherwise would be. This somewhat slower rate of expansion of the economy might not mean a slower rate of improvement in economic opportunities for residents since many of the new jobs and much of the income associated with the No Action Alternative would have gone to newcomers and non-residents. Just as important, the measures that protected other Reservation values could compensate for any reduction in economic opportunity associated with the somewhat slower economic growth.

Integrated Resource Management Planning would seek to concentrate settlement in areas where that settlement was least likely to threaten other Reservation values. In doing so, it could protect significant parts of the Reservation from being converted from very low density agricultural and forestlands to higher density suburban and exurban sprawl along with the roads, utilities, and other infrastructure needed to serve that sprawling human settlement. This in turn would protect the Reservation's potential to support traditional subsistence activities, protect the aboriginal character of more of the Reservation's natural landscape, and better protect agricultural traditions. In that sense it would better protect the Reservation as the homeland of the Coeur d'Alene people.

The Preferred Alternative is unlikely to restrict population growth significantly. The amount of land allocated to dense human settlement is over 11,000 acres. Currently there is about one structure per 7.5 acres in that development zone. If that density were allowed to increase to where there were two dwellings per acre, an additional 21,000 dwellings could be built that could house an

additional 53,000 residents. That is neither the intent of the Preferred Alternative nor a projection of what will actually happen. It does, however, indicate that this alternative provides ample opportunity for population growth. It simply seeks to guide that growth to areas where other important Reservation values are least threatened.

The Preferred Alternative would seek to protect existing agricultural land from conversion to residential and commercial uses. The primary driver in the conversion of farmland to other uses is the commercial market. Agricultural prices have been so low for so long that potential residential and commercial users of that land can make offers for that land that exceed the value of the land in agricultural production. In short, in areas within commuting distance of urban centers, market forces work against preserving land in agriculture. In that sense the question of maintaining current agricultural uses of Reservation land is more of a cultural and open space issue than an economic issue. The conversion of such lands to non-agricultural uses does not threaten the Reservation economy, but it does threaten some important Reservation qualities and cultural traditions. The Preferred Alternative seeks to protect the way of life, open space, and rural characteristics associated with agricultural land use.

The level of impact of the Preferred Alternative on socioeconomic well-being will largely depend on how effective the Integrated Resource Management Planning is in achieving its objectives. In an open economy in which the powers of government are limited, external economic forces are difficult or impossible to control. Growth on the Coeur d'Alene Reservation cannot be stopped if market forces are strongly supporting it. All that Integrated Resource Management Planning can do is to try to guide that growth so that it does the least damage to other important values. If effective, that would be a significant accomplishment.

The Preferred Alternative is likely to have a moderate positive impact compared to conditions that would develop in the absence of any new attempts to manage the impacts of economic growth on the Reservation. Because the Preferred Alternative seeks to protect those social, Tribal cultural, and natural environmental values that currently make the Reservation an attractive place to live, it will also assist in maintaining a sustainable economy that is successful in holding and attracting people and the economic activity associated with them.

#### **Table 4.4.12.2 Alternative B Impacts on Quality of Life Criteria**

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##### *Economic & Subsistence*

Moderate improvements in quality of subsistence resources, fairness and equity.

##### *Spiritual / Moral*

Moderate improvements in protection of culture, traditions, and religion.

Minor restrictions on freedom to make private choices.

##### *Aesthetics*

Moderate improvements in natural beauty, open space, and recreation opportunities.

### *Community Well-Being*

Moderate improvements in projection of future generations, cultural diversity, and land integrity.

### *Personal Well-Being*

Minor improvements in income.

Maintenance of health and peace of mind.

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## **Impacts of Alternative C—Conservation Alternative**

The Conservation Alternative would seek to guide dense human development on the Reservation into a geographic area that would only be half as large as that allowed for in the Preferred Alternative. In that sense it would protect more of the landscape from the impact of dense human settlement. In addition it would manage over half of all of the Reservation's lands for their environmental values, repairing past damage and protecting existing wildlife and landscape values. About a third of the land that would be primarily managed for agricultural production under the Preferred Alternative would be managed for natural and cultural values in addition to its agricultural potential under this Alternative. One expected result would be the maintenance of the existing levels of low-density settlement across many parts of the Reservation.

To the extent that this strategy is successful, potential residents and businesses that sought to settle in remote locations that had high natural and cultural values would not be able to do so. Because of that, population and economic growth might be slower. On the other hand, those potential residents who realized that broad parts of the Reservation were protected from further human development might find living in the areas set aside for development on the Reservation more attractive *because* the surrounding landscapes and wildlife are protected. Studies of rural economic vitality show that the presence of landscapes that are protected from private commercial development tend to stimulate local economic vitality. Simply the presence, for instance, of federal lands, wildlife refuges, roadless areas, open space, etc. tends to support settlement and its associated economic activity. Similarly, the presence of recreation opportunities or natural amenities have similar positive economic impacts (McGranahan and Beal 2002; Johnson and Beale 2002). Protecting landscapes, rather than discouraging economic vitality, appears to promote those types of economic vitality that are consistent with that landscape protection, leaving the area better off rather than worse off in terms of most measures of economic vitality.

If that pattern were to be the case on the Coeur d'Alene Reservation in response to a more conservation-oriented management plan, the economic indicators would not be depressed by the Conservation Alternative but the environmental benefits of the conservation strategy would still be enjoyed, leaving the Reservation population somewhat better off in terms of overall socioeconomic well-being than either Alternative A or B. If, on the other hand, this "amenity effect" is not experienced, the Conservation Alternative would, in effect, sacrifice a modest amount of economic vitality for an enhanced quality of life on the Reservation.

For the Coeur d'Alene Tribe, the protection and restoration of the Reservation's natural land-

scapes is not merely a matter of protecting “amenities” that are similar to those that can be found in many locations around the nation. Rather the conservation of the Reservation’s natural landscape is a matter of protecting an important part of their aboriginal homeland. As discussed above, this has profound cultural and spiritual meaning regardless of its implications for economic vitality.

Under the Conservation Alternative, like the Preferred Alternative, there would be little Reservation land that was managed primarily for commercially-supported recreation. This, however, should not be interpreted to mean that subsistence and recreation activities of residents would decline. The opposite is likely to be the case. The protection of the natural and cultural values on a large part of the Reservation would assure the continued availability of opportunities for dispersed recreation and subsistence activities. Commercially-supported recreation, however, would not be a growing component of the Reservation economy.

The Conservation Alternative would seek to improve air quality, working towards air quality standards that would allow the Reservation to qualify for the U.S. Environmental Protection Administration’s pristine air quality standards (Class I). This could restrict the types of economic activities that could take place on the Reservation, excluding those that depend on disposing of substantial waste into the ambient air. Class I air quality status, however, is compatible with significant amounts of economic vitality. That air quality standard is applicable to all National Parks and Wilderness Areas, yet the economic vitality in counties adjacent to these areas over the last forty years has been two to four times as high as that found in other rural areas. In addition large manufacturing enterprises can operate within Class I air quality regions. The Flathead Reservation in Montana, for instance, has operated under Class I standards for two decades and has experienced economic improvements similar to those experienced on the Coeur d’Alene Reservation including the establishment of a new manufacturing facility that at its peak employed almost a thousand workers (Jore Tool). Class I air quality status is clearly consistent with ongoing economic vitality.

Managing over half of the Reservation’s land area for conservation purposes would not necessarily prevent ongoing population growth. Over six thousand acres would be available for higher density settlement. The current density in those “development” areas is about four acres per structure. Clearly considerable additional settlement is possible in these areas. If two structures per acre were acceptable densities in these “developed” areas, the Conservation Alternative would allow another 10,000 dwellings and an additional population of 25,000. That would represent a near quadrupling of the Reservation population. In addition, it would only be in the “conservation” areas that new pockets of residential and commercial development would be discouraged. Such settlement in the agricultural and forest areas that was not inconsistent with maintaining these lands as working landscapes would be allowed. However, to the extent that potential new residents were primarily interested in settling in relatively remote, low-density, settings in the Reservation’s forests and farmlands and along its lakeshores, the Conservation Alternative would discourage that type of population growth and the economic activity associated with it.

Overall the Conservation Alternative, if successfully implemented, would have a major positive environmental and cultural impact on the Reservation compared to the No Action Alternative. At the same time the Conservation Alternative is likely to reduce the rate of economic ex-



pansion on the Reservation. For many Reservation residents the net impact would be at least a moderate positive impact. To the extent that this alternative is successful in conserving the Reservation resources it is focused on, it will have a major long-run positive impact on the Reservation’s cultural and natural environments compared to the No Action Alternative.

Table 4.4.12.3 Alternative C Impacts on Quality of Life Criteria
<i>Economic &amp; Subsistence</i>
Major improvements in quality of subsistence resources, fairness and equity.
<i>Spiritual / Moral</i>
Major improvements in the protection of culture, traditions, and religion. Minor restrictions on freedom to make private choices.
<i>Aesthetics</i>
Major improvements in natural beauty, open space, and recreation opportunities
<i>Community Well-Being</i>
Moderate improvements in protection of future generations, cultural diversity, and land integrity.
<i>Personal Well-Being</i>
Negligible improvements in income. Improvement in health and peace of mind.

**Impacts of Alternative D—Growth Alternative**

Alternative D would commit most of the Reservation’s land area to human activity. Relatively dense settlement would be allowed in a broad swath along the entire length of Highway 95 as well as around St. Maries. In addition, most of the rest of the Reservation would be managed as a working landscape where agricultural production, lumber production, and commercially-supported recreation would be pursued. Only a small area at the southern end of Coeur d’Alene Lake would be managed for conservation purposes. In addition a small area in the northwest corner of the Reservation would be managed for rural values. Most of the Reservation would be allowed to become a human-dominated landscape where commercial economic activities were encouraged and supported. Only about four percent of the Reservation land area would be managed for rural and conservation objectives. Almost three-quarters of the Reservation’s area would be committed to dense human settlement, recreational development, and timber harvest.

This would not lead to an immediate change on the Reservation compared to the No Action Alternative. Initially, this Growth Alternative and the No Action Alternative would follow similar paths with economic opportunities and conditions dictating the rate and location of economic

change on the Reservation. Accelerated growth would begin in the northern portions of the Reservation that will be served by the upgraded Highway 95.

To the extent that the Growth Alternative is successful in adopting public policies that effectively encourage economic expansion on the Reservation by supporting residential and commercial expansion and the development of recreational facilities on Coeur d'Alene Lake, economic growth in the short-term would be accelerated. To the extent that public policies reduced regulatory restrictions on commercial and residential development, more exurban sprawl may (would) take place on the Reservation. The larger population and volume of economic activity will lead to higher total levels of employment and aggregate income. Given the open nature of the Reservation economy it is unlikely that this will lead to higher levels of pay or, necessarily, to lower levels of unemployment. Land values are likely to rise relative to the other alternatives, benefiting landowners but burdening homebuyers and renters.

It is not clear that the long-term impacts on economic vitality would be as positive. Human dominated landscapes, in general, have not been as successful at holding and attracting new residents and economic activity as areas that have substantial protected natural areas. One can, for instance, contrast the rural areas of the Great Plains with the rural areas of the Mountain States. On the Great Plains there are almost no public lands and almost no protected landscapes. Almost the entire landscape has been committed to human economic activity unconstrained by government regulation. The result has not been impressive from the point of view of economic vitality. The rural Great Plains have been losing population for most of the 20th century and that loss has accelerated over the last decade despite the commitment of most of the landscape to commercial activity and active public policy supporting such commercial development.

In contrast, the Mountain States have been the fastest growing region in the nation for the last several decades even though they are isolated from the rest of the nation by difficult terrain and "burdened" by substantial public land where environmental regulations limit commercial economic activity. Natural amenities associated with those public and protected landscapes have been a significant source of the region's economic vitality. It is not that the Great Plains did not have such natural amenities. The Journals of Lewis and Clark describe a natural paradise teeming with wildlife and beautiful and challenging terrain. It was the commitment of almost that entire landscape to human economic activity that transformed the region into the "featureless plain" that both visitors and many residents currently see as characterizing the region. (Power 2002)

Unregulated, government supported commitment of all of a landscape's resources to commercial ventures does not necessarily bring long-term economic vitality to a region. It may well not under the Growth Alternative on the Coeur d'Alene Reservation either.

The impact of Alternative D, if successfully implemented, on the physical and social character of the Reservation can be seen by looking at the Spokane Valley, the Coeur d'Alene metropolitan area, and the Sandpoint area. These areas demonstrate that urban, suburban, and exurban sprawl can relatively quickly transform the social, natural, and human-built character of a rural area.

The size of the "developed" area set aside in the Growth Alternative would allow a massive increase in population. Currently there is approximately one structure per 30 acres in this develop-

ment area. If densities of two structures per acre were reached, the 58,000 acres allocated to dense settlement would allow an additional 113,000 structures and an additional population of over 280,000 people. It is very unlikely that such a level of development would ever take place in the foreseeable future. However, the growth of the Coeur d'Alene urban area from 30,000 to 110,000 over the last 30 years does provide evidence that dramatic changes in the demographic and economic character of an area can take place relatively quickly.

For the Coeur d'Alene Tribe this might well represent the permanent loss of most of the aboriginal qualities of the Reservation's natural landscapes. This would eliminate the potential for most traditional subsistence activities. In many ways, the Reservation would cease to be a Tribal homeland and would primarily become an extended suburban settlement and part-time recreational home for non-Indians. The cultural and spiritual losses to the Coeur d'Alene would be major.

The Growth Alternative would have major long-term negative impacts on the social, cultural, and natural environments of the Coeur d'Alene Reservation. In compensation, there would be medium-term improvements in the economic indicators. In the longer term, however, this alternative's commitment to a human dominated landscape is also likely to discourage economic vitality by undermining the Reservation's attractiveness as a place to live, work, and do business. In that case, the Growth Alternative will have a major long-term negative impact on overall socioeconomic well-being.

**Table 4.4.12.4 Alternative D Impacts on Quality of Life Criteria**

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*Economic & Subsistence*

Major damage to subsistence resources.  
 Moderate decline in fairness and equity.  
 Minor expansion in ability to earn a living.

*Spiritual / Moral*

Major damage to the protection of culture, traditions, and religion.  
 No restrictions on freedom to make private choices.

*Aesthetics*

Major damage to natural beauty, open space and undeveloped recreation opportunities.  
 Moderate expansion of commercial recreation.

*Community Well-Being*

Major damage to future generations, cultural diversity, and land integrity.

*Personal Well-Being*

Minor improvements in income.  
 Moderate threats to health and peace of mind.

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Ne'atsqhaqst'm "Where Crows Call"

### **Cumulative Impacts**

When viewed in the context with other past, present, and future foreseeable activities outlined in Section 4.0, Cumulative Effects, Alternative D would have the largest, long-term, negative impacts on the natural, social, and cultural resources of the Reservation. Alternative A would follow D in having a large adverse effect on those resources. Alternatives B and C would follow Alternative A in the degree of impacts on the natural, social, and cultural resources. Both of the latter alternatives offer a significant potential to avoid some of the cumulative impacts that would otherwise take place and repair some of the damage associated with past human activities. Because the natural, social, and cultural resources of the Reservation provide a highly valued flow of goods and services to residents, the cumulative impact of the alternatives on these non-market aspects of socioeconomic well-being would be ordered in the same manner.

Cumulative impacts of the alternatives on commercial market economic indicators such as total employment, aggregate dollar volume of business, average pay, and unemployment rate would differ between the short-term and the long-term. Alternative D followed by Alternative A would have moderate positive impacts on total employment and the dollar volume of business in the short-

term but negligible impacts on average pay and unemployment. In the longer term, the degradation of the Reservation's quality of life would slow the quantitative economic expansion, possibly leading to future stagnation. Alternative C, because it seeks to more carefully manage and control the location and character of human activity on the Reservation, could reduce the rate of expansion of the economy in the short-term while protecting the long-term quality of life on the Reservation. That strategy in the long-term would result in a more sustainable improvement in socioeconomic well-being. Alternative B, because it places fewer constraints on the location and character of human activity on the Reservation, is not likely to have even a short-term depressing effect on market economic activity, and, if successful, would also provide significant long-term protection to the quality of life on the Reservation.

When the non-market and market aspects of socioeconomic well-being are combined, Alternative D will have the greatest long-term negative impact on the Reservation followed by Alternative A. Because of the uncertainty involved, it is difficult to make a clear judgment about whether Alternative B or C would have the most positive cumulative impact. Each differently balances the risks associated with allowing human activities to continue to damage the natural, social, and cultural resources of the Reservation against the impacts of discouraging some market economic activities. With the knowledge we have available, it is not possible to say which one would have the most favorable long-term impact.

### **Mitigation and Monitoring**

Mitigation to offset impacts to the landscape would be preservation or restoration of non-developed lands that would contribute to the overall goal of maintaining a high level of environmental quality. Targeted Tribal economic development policies that sought to enhance economic opportunity for those disadvantaged in the developing market economy could offset any negative impacts of the alternatives on the economic indicators.

The Tribe would be responsible for monitoring projects within the Reservation and across the aboriginal territory based on implementation of one of the Alternatives. The Tribe would work to actively participate in the planning, consultation, and implementation of projects and mitigation to the degree appropriate based on Alternative selection.

### **Summary of Impacts**

Alternative D would have the greatest long-term adverse impacts on socioeconomic well-being on the Reservation. Alternative A would also have a significant long-term negative impact, but less than Alternative D. Alternatives B would have lower adverse impacts and relative to the no-action alternative (A) would have moderate long-term positive impacts. If the rapid residential and commercial development that has characterized Kootenai County (the Greater Coeur d'Alene metropolitan area) over the last three decades continues to spread south onto the Reservation, Alternative C would have the least long-term adverse impacts and, relative to the no-action alternative (A) would have major long-term positive impacts.



**Table 4.4.12.5 Summary of Impacts on Quality of Life Criteria**

<i>Quality of Life Criteria</i>	<i>Alternatives Considered</i>			
	<i>Alternative A</i>	<i>Alternative B</i>	<i>Alternative C</i>	<i>Alternative D</i>
<i>Economic &amp; Subsistence</i>	Moderate damage to subsistence resources. Minor declines in fairness and equity. Minor expansion in ability to earn a living.	Moderate improvements in quality of subsistence resources, fairness and equity.	Major improvements in quality of subsistence resources, fairness and equity.	Major damage to subsistence resources. Moderate decline in fairness and equity. Minor expansion in ability to earn a living.
<i>Spiritual / Moral</i>	Moderate damage to culture, traditions, and religion. Minor improvement in freedom to make private choices.	Moderate improvements in protection of culture, traditions, and religion. Minor restrictions on freedom to make private choices.	Major improvements in the protection of culture, traditions, and religion. Minor restrictions on freedom to make private choices.	Major damage to the protection of culture, traditions, and religion. No restrictions on freedom to make private choices.
<i>Aesthetics</i>	Moderate damage to the recreation, natural beauty; open space.	Moderate improvements in natural beauty, open space, and recreation opportunities.	Major improvements in natural beauty, open space, and recreation opportunities.	Major damage to natural beauty, open space and undeveloped recreation opportunities. Moderate expansion of commercial recreation.
<i>Community Well-Being</i>	Moderate damage to future generations, cultural diversity, and land integrity.	Moderate improvements in projection of future generations, cultural diversity, and land integrity.	Major improvements in protection of future generations, cultural diversity, and land integrity.	Major damage to future generations, cultural diversity, and land integrity.
<i>Personal Well-Being</i>	Minor improvements in income. Minor threats to health and peace of mind.	Minor improvements in income. Maintenance of health and peace of mind.	Negligible improvements in income. Improvement in health and peace of mind.	Minor improvements in income. Moderate threats to health and peace of mind.



#### ***4.4.13: Resources Not Affected by the Alternatives***

None of the alternatives and associated management actions would impact regional or local climatic conditions, geology or topography.

#### ***4.4.14: Environmental Justice***

Executive Order 12898 (59 FR 7629), *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, requires that federal agencies identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of their programs and activities on minority and low-income populations.

With respect to the Coeur d'Alene Tribe IRMP, environmental justice issues would concern either socioeconomic conditions or health risk exposures. The impact of the Alternative actions on the area economy would be minimal, and is not expected to disproportionately affect minority or low-income populations. Proposed management actions would not produce hazardous waste or conditions that might affect human populations, nor result in other disproportionately high and adverse impacts. Alternatives are designed to meet all concerns and needs.

#### ***4.4.15: Irreversible and Irretrievable Commitments of Resources***

NEPA regulations also state that the analysis must show any irreversible or irretrievable commitments of resources that may result from the Alternatives.

***Irreversible commitment*** is a permanent resource loss including the loss of future options. It usually applies to nonrenewable resources, such as minerals, or to factors that are renewable only over long periods, such as soil productivity or old growth forests.

***Irretrievable commitment*** is the loss of use or production of a natural resource for some time. One example is suitable wildlife habitat being used for a road. Habitat growth or productivity is lost while the land is a road, but at some point in time, it could be revegetated.

Irretrievable commitments of Tribal culture and subsistence, cultural resources, soil productivity, hydrologic function, fisheries and wildlife habitat, species diversity and richness, water quality and quantity, agricultural land and forest will result from development and its associated infrastructure and resource demands. These irretrievable commitments would occur to varying degrees depending upon which Alternative is selected and to what degree the selected Alternative is implemented. Some or all of the potential development may be considered an irreversible commitment of resources.

#### ***4.4.16: Unavoidable Adverse Impacts***

Proposed activities would likely produce adverse effects on some components of the environment that cannot be avoided. For this project those are:

- \* Minor losses of soil productivity from development would occur.
- \* With the expansion of development and infrastructure, fisheries and wildlife habitats are

expected to decrease on the Reservation, depending on the Alternative selected and how much mitigation is done.

All other impacts are deemed to be neutral or beneficial. Potential effects are documented in Chapter 4 and summarized in Chapter 2. A range of reasonable alternatives has been considered, and the alternatives include management requirements and mitigation measures to avoid or reduce these adverse environmental effects. The implementation and monitoring plan in Appendix F documents the methods that the Tribe will use to measure the effectiveness of these requirements and measures.

#### ***4.4.17: Relationship Between Short-Term Uses and Long-Term Productivity***

Long-term productivity refers to the capability of the land to provide subsistence items, market outputs and amenity values into the future. The quality of life for future generations is linked to the capability of the land to maintain its productivity, its native biodiversity and good water quality and quantity. The IRMP will balance the needs of the area, which will require short-term impacts for improvement projects (i.e. habitat restoration, wetlands). Project features, management requirements, and mitigation measures are built into the action alternatives to ensure that long-term productivity or use would not be impaired by the application of short-term management practices. The IRMP will contain goals to restore some acreage for habitat and/or ecological management. This will result in a short- and long-term trade-off between restoration of ecosystem function and development, depending upon which Alternative is selected. For some resources—such as water quality and soils—long-term productivity is expected to increase due to the short-term management improvement projects (water quality monitoring, erosion control, noxious weed control) proposed by the action alternatives.

#### ***4.4.18: Energy Requirements and Conservation Potential***

All Alternatives would require energy to implement. However, the energy required in terms of petroleum products is insignificant when viewed in light of project costs and the effect on the national and worldwide petroleum reserves. In addition, goals for the conservation of energy are included in the Alternatives.

## Chapter 5

### List of Preparers

#### 5.1.1 Coeur d'Alene Tribe

**Table 5.1.1**

<i>Name</i>	<i>Contributions</i>	<i>Degree and/or Type of Experience</i>	<i>Years of Experience</i>
Alfred Nomee*	All sections	Natural Resource Director	28
Tiffany Allgood	Interdisciplinary Team Leader	M.S. Natural Resources; B.A. Literature	11
Felix Aripa*	Landscape and Culture	Retired Transportation engineer, Natural Resource and Culture Committees, Tribal Elder	60+
Jim SiJohn*	Landscape and Culture	Culture Committee	40+
Richard Mullen*‡	Landscape and Culture	Tribal Council member	10+
Norma Jean Louie*	Landscape and Culture	Land Services manager, Culture Committee	20+
Lester Higgins	Air	Air Quality Manager	6
Cam Heusser	Biodiversity, Riparian, Wildlife, Threatened and Endangered Species	M.S. Fisheries Resources; B.S. Wildlife Science	6
Robert Matt*	Coeur d'Alene Lake	B.S. Wildlife Resources	9
Janel McCurdy	Fire and Forest	B.S. Forest Resource Management	24
Angelo Vitale	Fish	B.S. Biology and Botany	14
George Torpey*	Minerals	Forest Roads Administrator	20
Eric Granlund	Soil and Agriculture	B.S. Business Management	26
Scott Fields	Water	B.S. Natural Resource Science	5+
Dee Bailey	Water	B.S. Fisheries Management	9
Gerald Green	Wildlife	M.S. Wildlife; B.S. Wildlife	16
Dave Lamb	Wetlands	M.S. Water Quality Management	23
Charles Morris*	Development	B.S. Aviation Management; Development Corporation Board	16 +
Fred Alt***‡	Development and Energy	M.A. Education; B.A. Planning	30

Elva Allan†	Development and Energy	M.A. Planning, M.A. Public Administration; B.A. Government	6
Valerie Fast Horse*	Energy and Infrastructure	A.A.S Computer Information Technology	6
Bill Denton	Environmental Health and Solid and Hazardous Waste	M.S. Environmental Studies; B.S. Wildlife; Registered Sanitarian	24
Dale Bates†	Environmental Health	B.S. Environmental and Public Health; M.Ph; Registered Environmental Health Specialist	21
John Abraham*†	Housing	B.S. Business Management	26
Lux Devereaux**	Infrastructure	M.A. Planning; B.A. Business Administration	11
Eric Gjevre	Pesticides	B.S. Agronomy	14
Dean Chapman*	Recreation	B.A. Recreation and Tourism	10
Frank Roberts	Geographic Information Systems (GIS)	B.S. Forest Resource Management	13
James Twoteeth*	GIS	B.S. Cartography/GIS	3
Steve Thomas†	Editing	M.S. Watershed Science B.S. in Botany and Engineering	5
Clay Courtright	Editing	B.S. Wildlife	5
Jill Wagner	Culture	B.A. Linguistics; B.S. Anthropology; M.A. Anthropology; Ph.D. Anthropology	17
Quanah Matheson*	Culture	B.A. Anthropology	2
<i>EXTENDED TEAM</i>			
Alieene George**†	IDT Member	Natural Resources, Accounting, Education	27
Lisa Weaselhead**†	IDT Member	Natural Resources	2
John Hartman	IDT Member	B.S. Cartography Internet Application	9
Norris Boothe	IDT Member	B.S. Forest Management	26
Perry Kitt*	IDT Member	A.A.S. Autocad	16+
Allison Meshell*‡	IDT Chair	Tribal Employment Rights Office	3
Mark Stanger**	IDT Member	A.A. in Liberal Arts and Science	27
Louis Aripa*	IDT Member	Housing Authority; Development Corporation Board; Administrative Accounting	5

Marcy Morris*	IDT Member	Tribal Community Member, Casino Marketing and Sales	5
James Nilson	IDT Member	Tribal Employment Rights Office Compliance Officer	2.5
Garry Hendrickx*	IDT Member	Tribal Council member; Natural Resource Committee	2
Ron LaSarte*†	IDT Member	Forest Technician	20
Robert Bostwick†	IDT Member	Press Secretary	11
Jeff Jordan*	IDT Member	Fisheries; Coeur d'Alene Lake Board	7
Mike Simonson	IDT Member	B.S. degree in forestry	25
Phil Cernera	IDT Member	B.S. in Aquatic Resources	22
Jack Gunderman	IDT Member	B.S. in Range Resource Management	15
Debra Hanks	IDT Member	M.S. in Health Care Administration, B.S. in Nursing; B.S. in Zoology	30
Ronald Peters	IDT Member	M.S Biology, Fisheries Emphasis; B.S. Biology, Zoology Emphasis	17
Frank SiJohn*†	IDT Member	Forest Technician	20
Ernest Stensgar*	Tribal Council liaison to the IDT;	Tribal Council Chairman for 18 years, Council Member for another 5 years	23
Martha Little Crow**†	IDT Member	Natural Resources	4
Marvin Sonder*†	IDT Member	Land Services	5
Barb Scaroni†	IDT Member	B.S. Forest Science, Emphasis in Silviculture	26
Ida Curley**	IDT Member	Tribal community member; retired Health and Social Services	39
Alice Koskela†	IDT Member	Indian Law	3
Wally Hubbard†	IDT Member	B.S. Planning	21+
Jeannette Whitford*‡	IDT Member	Development Corporation Board; Tribal Elder	N/A
John Daniels*	IDT Member	Tribal community member	N/A
Reita Kitt*†	IDT Member	Information Systems; University of Idaho Hoist Program	2+

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\*Coeur d'Alene Tribal Members

\*\* Members of Other Federally-Recognized Tribes

† No longer a member of the IDT due to change in position or in employment status

‡ Deceased

## 5.2.1 Consultants

### 5.2.1: Dr. Thomas Power

Dr. Power developed the Social and Economics Sections in Chapters 3 and 4. Dr. Power has the following credentials:

Degrees: PhD, Economics; M.A. Economics; B.A. Physics  
Years of Experience: Professor of Economics, University of Montana, 1968-2003;  
Chairman of the Economics Department, University of Montana, 1978-2003

### 5.2.2: URS Corporation (Work by URS ended in September 2003)

**Table 5.2.2**

<i>Name</i>	<i>Contributions</i>	<i>Degree</i>	<i>Years of Experience</i>
Dautis Pearson	NEPA Coordinator / URS Team Leader / Facilitation / Public Involvement/ Impact Assessment Process	B.A. Biology	20
Steve Demus	Environmental Scientist/ Research	BS Environmental Science	2
Jessica Larson	GIS Coordinator	B.A. Geography	8
Cathy Ramm	Public Involvement (Ramm Associates)	B.S. Sociology	16
Karen Beattie	Oversight and review QA/QC	M.A. Political Economy	20
Margarett Pitt	Administration and Writer/Editor	NA	22
Beth Budke	Technical Support	NA	2
Andrea Simmons	Writer/Editor	B.A. Biology	10
Dave Every	Ecology	P.H.D. Botany	25
Aaron English	Wildlife	B.A. Wildlife Biology	9
Mike Kelly	Cultural Resources	M.A. Anthropology	23
Toni Hardesty	Air Quality	B.S. Environmental Health	12
Lisa Kuchera	Hazardous Waste	B.S. Geographic Information Management	



## CHAPTER 6

### List of Agencies, Organizations and Persons Receiving the Draft PEIS

#### 6.0 Introduction

This Chapter contains an overview of the public involvement and agency consultation during the preparation of the Coeur d'Alene Tribe's Integrated Resource Management Plan (IRMP) Draft Programmatic Environmental Impact Statement (DPEIS). It also contains a list of the agencies, organizations and persons who will receive a copy of the IRMP DPEIS for comment. The IRMP DPEIS has benefited from extensive consultation and coordination. Appendix C contains additional details on the results of the public involvement as well as more detail on agency consultation.

The purpose of public involvement is both to inform the public of the proposed project and to solicit public response regarding the public's needs, values, and evaluations of proposed solutions. Public involvement programs are designed not only to meet regulations, but also to include individuals, organizations, agencies, and government entities that are interested in the project and decision-making process.

#### 6.1 Public Involvement in the Environmental Action Plan (EAP) Project

The Coeur d'Alene Tribe initiated the Environmental Action Plan (EAP) Project in 1997. The EAP Project is designed to include extensive public involvement. The EAP Project itself was initiated to coordinate the identification, assessment and management of environmental concerns on and near the Coeur d'Alene Reservation. There are three phases of the EAP Project:

- \* Phase I: Assessment of Environmental Concerns—completed
- \* Phase II: Development of an Environmental Management Plan—in progress
- \* Phase III: Implementation of the Environmental Management Plan

#### 6.2 Public Involvement in Phase I of the EAP Project

Phase I of the EAP Project resulted in the *Coeur d'Alene Tribe's EAP Assessment of Environmental Concerns on and near the Coeur d'Alene Reservation* report (2000). For additional details on the public involvement in Phase I of the EAP Project, please refer to the EAP Assessment report. Copies can be obtained from the Coeur d'Alene Tribe's Natural Resource Department.

### **6.3 Public Involvement in Phase II of the EAP Project**

The Coeur d'Alene Tribe has continued to invest considerably in public involvement activities in Phase II of the EAP Project. The Tribe has exceeded the public involvement requirements of the National Environmental Policy Act in preparing the IRMP DPEIS. Please refer to Appendix C.

#### ***6.3.1 First Series of Integrated Resource Management Plan public meetings***

The Tribe held the first series of IRMP public meetings in April and May 2001 to obtain input into the draft workplan to develop the Integrated Resource Management Plan. The Tribe issued a press release to local newspapers and put fliers up around the Reservation to announce the meetings. Announcements about the formulation of the IRMP Community Advisory Committee were also made at the first series of public meetings. Appendix C has details on the results of the first series of IRMP public meetings.

#### ***6.3.2 Development of the IRMP Community Advisory Committee***

The Coeur d'Alene Tribe held the first IRMP Community Advisory Committee meeting on May 31st, 2001. Postcard invitations to the meetings were sent to every post office boxholder and rural route address on the Reservation, as well as public service announcements in local newspapers and fliers posted around the Reservation. Anyone in the public may attend IRMP CAC meetings and they are regularly announced in local newspapers and through a regular mailing list of over 200 individuals, agencies, governments and businesses. The IRMP CAC advises the Tribe on the development of the IRMP. The IRMP CAC has been meeting on the last Thursday of the month, as needed, since it was formulated.

#### ***6.3.3 IRMP Future Focus Workshops***

The Coeur d'Alene Tribe held three IRMP Future Focus workshops in June 2002 in Worley, Plummer and St. Maries, Idaho to assist in developing the Integrated Resource Management Plan (IRMP) Programmatic Environmental Impact Statement (PEIS). In addition, approximately 6,000 IRMP Future Focus questionnaires were mailed out to all Reservation landowners, homeowners and Tribal members prior to the workshops. Approximately 112 questionnaires were returned. For details on the results of the Future Focus Workshops, refer to Appendix C.

#### ***6.3.4 Formal Public Scoping***

The process of informing the public of the proposed action and soliciting the response is known as "scoping". A Notice of Intent to prepare the Programmatic Environmental Impact Statement appeared in the Federal Register on Thursday, September 19, 2002 (Volume 67, Number 182), including details on the scoping meeting schedule. Two IRMP scoping meetings were held on October 8th and 9th, 2002. Legal notices were published in the St. Maries Gazette Record, the Idaho Spokesman-Review and the Coeur d'Alene Press which also included the schedule for the scoping meetings. Additionally, the scoping meetings were announced in the same local newspapers

that published the legal notices. A direct mailing was sent to the public mailing list of over 250 addresses. Also, fliers were posted in public places around the Reservation about a week in advance of the meetings. For details on the results of the IRMP scoping meetings, please refer to Appendix C.

## **6.4 Agency Coordination and Consultations**

The Coeur d’Alene Tribe has worked at coordinating with federal agencies on the development of the IRMP DPEIS. The Tribe placed the US Bureau of Indian Affairs, the US Environmental Protection Agency, the US Fish and Wildlife Service and the US Army Corps of Engineers on the IRMP Community Advisory Committee mailing list. This mailing list informs the agencies on the Tribe’s progress in developing the IRMP NEPA documents. The Tribe has also included many other agencies in the coordination process (see Section 6.5 below).

The agencies listed above all received a preliminary IRMP DPEIS to review and provide informal comments upon. For additional details on agency coordination and consultations, refer to Appendix C.

## **6.5 Distribution of the IRMP DPEIS**

Copies of the IRMP DPEIS Executive Summary were distributed by the Coeur d’Alene Tribe to the following government agencies, Tribes, organizations, libraries and individuals:

<b>Name</b>	<b>Affiliation</b>
Charles Mullen	
Susan Garry	
Mike George	
Tom Lamb	
Eilene Cottongim	
Ken Ostaszewski and Lori Nelson	
Bob Whitman	
Jack Bowlin	
Ruth Rathbun	
Mike Hemkin	
Nancy Wolff	
Paul Daman	
Rich Morrison	
John Kennison	
Paul Stearns	
John Bottelli	
Kathryn Arneson	
Erna and Everett Headrick	
Scott and Mary Lou Reed	

<b>Name</b>	<b>Affiliation</b>
Virginia Nigh	
Chester and Shirley Slade	
Stuart Deysenroth	
Dwayne Pierce	
Marceline S. Kevis	
Dan Jolibois	
Rick Anderson and Faith Lutze	
Jack Spanner	
Peg Rodgers	
Dallas Wilmarth	
Nancy Jim and Demetrio Parra	
Dennis Stitt	
Buddy Stanis	
Charles and Carol Smith	
Ed Evans	
Maureen Hodgson	
Frank Barker	
Felix Aripa	
Stan Smith	
Del and BernaDeane Blackburn	
Ward and Linda Hart	
Roy Buckless	
Adrianna Miramontez	
Dennis Wheeler	
Don Heikkula	
Duane Thompson	
Dolly Hartman	
Jerry and Donna Williams	
David O. Lindsay	
Toni and Roger Hardy	
Angelo and Joyce Bissell	
Fred and Josefina Schoenick	
George Bloomsburg	
Jean Selby Maucieri	
Larry Chapman	
Russell Lowry	
Michael Allen	
Gary Willard	
John Wheaton	
Tom and Gail Davidson	
A.F. Corky Booth	
Jody Pepion	
Charles F. Kramer	
Randall Adrian	
Bill and Darlene Potts	

<b>Name</b>	<b>Affiliation</b>
Charles W. Jackson	
Dave Clark	
Ed Lozeau	
Bob and Jeri McCroskey	
June Judd	
John Daniels	
C.C. Beck	
Dave Spier	
Greg Cossette	
Don P. Larkin	
Gordon Scott	
Merle SiJohn, Sr.	
Gary Wright	
Woody Hansen	
Lisa Spinelli	
Bill Latshaw	
Bob Martinson	
Margie Hansen	
Mike and Lynise Poe	
Dennis and Levene McPoland	
Bill & Ilene Lacey	
John B. Vallee	
Marcella Haynes	
Tim Dillman	
Michael Harrison	
Tim & Michele Martin	
Ronald & Betty Hawk	
Dean Gentry	
David Young	
Jessica Matheson	
Roland & Doris LeCoultre	
John Nigh	
Rody Rodeheffer	
Jason Vallee	
Douglas Payne	
Larry Bencik	
W. Bockstruck	
Steve Ettinger	
Maggie Olson	
Mariane Hurley	
Don Shriver	
Jim SiJohn	
Al Stifanick	
Laurie Smith	
Marlene Lambert	

**Name****Affiliation**

Arna Michael	
Pat Tyken-Collier	
Janel McCurdy	
Monte Kieling	
Stanley Cornelius	
Dale Dimico	
Edward A. White	
Shawn Keough	Associated Logging Contractors, Inc.
Woody Laughnan, Jr.	Benewah Community Hospital
Dave Johnson	Benewah County Commissioners
Dale Morlan	Benewah County Weed Supervisor
Kelly Scott	Benewah S&WCD
Don Patterson	Bennett Lumber
Mike Kerttu	Bennett Lumber Products, Inc.
June Boynton	Bureau of Indian Affairs
Don Sutherland	Bureau of Indian Affairs
Debra Rosenbaum	Bureau of Indian Affairs
Daniel C. Picard	Bureau of Indian Affairs
Arnie Browning	Bureau of Indian Affairs
Bob Crawford	Camp Sweyolakan
Jim Linskey	Cenex Supply & Marketing
Dave Asher	Cenex Supply & Marketing
Donna Spiers	City of Plummer
Mayor Robert Allen	City of St. Maries
Benewah County Commissioners	
Spokane County Commissioners	
Latah County Commissioners	
Clearwater County Commissioners	
Shoshone County Commissioners	
Whitman County Commissioners	
Sanders County Commissioners	
Mineral County Commissioners	
Isaac Henry	Farm Services Agency
Terry Baune	FSA Board
Don Hurst	Fulcrum Environmental
Ralph Bartholdt	Gazette Record
Larry Bruce	Gold Hill Resource
Ben Marsh	Hawkweed Action Committee
Mike Needham	Headwaters Trout Farm
Executive Director	Idaho Conservation League
Steve Cuvala	Idaho Dept. of Lands
Robert Haynes	Idaho Dept. of Water Resources
Ed Tulloch	Idaho Dept. of Environmental Quality



<b>Name</b>	<b>Affiliation</b>
Scott Stokes	Idaho Transportation Department
Martin Smith	Indian Health Service
Buell Hollister	Kootenai Environmental Alliance
Chairman Johnson	Kootenai County Commissioners
Nina Eckberg, Weed Superintendent	Kootenai County Noxious Weeds
Rand Wichman	Kootenai County Planning Director
Barry Pry	Kootenai Electric
Wanda Matt	Lakeside School Youth Advisor
Bob Lohn	National Oceanic and Atmospheric Administration —National Marine Fisheries Service
Dr. Michael Burke	North Idaho College
Darrell Tso	North Idaho College
Rick Barlow	Panhandle Health District
John Quigley	Plum Creek Timber Co.
Todd Brinkmeyer	Plummer Forest Products
Del Sperber	Plummer/Gateway Highway District
Kevin McHail	Potlatch Corporation
Roger Martinson	Regulus Stud Mill, Inc.
Rob Spafford	Ridolfi Engineers
Father Tom Connelly	Sacred Heart Mission
Sister Dolores Ellwart	Sacred Heart Mission
Executive Director	Save Our Summers
Maxine Treloar	Senior Citizens of Benewah County
Walt Edelen	Spokane Soil Conservation District
Greg Stern	Stimson Lumber
Wayne Trottier	Superintendent of Plummer-Worley School District
Nancy Wilson	The Lands Council
Executive Director	The Nature Conservancy—North Idaho Office
Dr. Rodney Frey	University of Idaho
Dr. Steven Daley Laursen	University of Idaho—College of Natural Resources
Arlene Boss	U.S. Environmental Protection Agency
Ron Kreizenbeck	U.S. Environmental Protection Agency Region 10
Jonathan Freedman	U.S. Environmental Protection Agency, Region 10
Chuck Mark	U.S. Forest Service
Renata McNair	U.S. Forest Service
Gary Ford	U.S. Forest Service
Senator Larry Craig	U.S. Senate
Senator Michael Crapo	U.S. Senate
Chief Lonnie Dyer	Worley Fire District
Tom Nigh	Worley Highway District

The following list of individuals, agencies, and organizations received the IRMP DPEIS Executive Summary by email, as they requested to be contacted by email:

**Name****Affiliation**

Alan Moomaw	U.S. Environmental Protection Agency
Alison Squier	
Angie L. Morow	
Arlene Boss	U.S. Environmental Protection Agency
Bernie Wilmarth	Potlatch Corporation
Brian Helmich	Idaho Fish & Game
Brian Orr	Bonner County
Carrie Chalcraft	
Carrie Cordova	U.S. Fish & Wildlife Service
Clerence Cross	
Dautis Pearson	URS Corporation
David White	Idaho Department of Parks & Recreation
Don and Rita Mueller	
Donna J. Matheson	Coeur d'Alene Tribe
Eric Besaw	Idaho Department of Lands
Eric Thomson	U.S. Department of Interior Bureau of Land Management
Erik Nielsen	
Fred Bear	Heyburn State Park
Greg Stern	Stimson Lumber
Gregg A. Rayner	U.S. Army Corps of Engineers
Jim Colla	Idaho Department of Lands
John Ferris	
Kate Kramer	
Ken Reid	Idaho State Historic Preservation Office
Kim Golden	Panhandle Lakes Resource Conservation District
Larry Hampson and Laura Ackerman	
Lunell Haught	Parks to Peaks
Mark Addy	Natural Resources Conservation District
Mark Compton	U.S. House of Representatives —Representative C.L. “Butch” Otter
Mark Cottrell	Natural Resources Conservation District
Patti Gora	Save Our Summers
Peg Carver	
Roderick Sprague	
Rodges Ankrah	U.S. Environmental Protection Agency
Rodney Hennekey	Idaho State Fish & Game
Shawn Fly	
Steve Weaver	
Susan Martin	U.S. Fish & Wildlife Service
Susan Spalinger	Terragraphics
Tim Vore	Avista Corporation
Valdasue Steele	University of Idaho Extension
Wave Reeves	Potlatch Corporation

## **Appendix A**

### **History of the Coeur d'Alene Tribe**

#### **From Time Immemorial to 1873: 5 million acres of Tribal Territory**

The Coeur d'Alene Tribe's aboriginal lands included about 5 million acres, but, as with all Indian Tribes, the Coeur d'Alenes ceded large areas of their territory and, through various agreements, reserved a portion of it (the "Reservation") *for their exclusive use and occupancy*.

The Coeur d'Alene Tribe was to have negotiated a treaty with Washington Territorial Governor Isaac Stevens, who had been assigned the job of treaty-making with western Indian nations. In the 1850's more westerly tribes signed treaties negotiated by Stevens, but this treaty-making process did not go as far east as Coeur d'Alene Territory before the outbreak of the Civil War. During that conflict, treaty-making with tribes was put on hold, but white settlement of Tribal territories continued. Gold was discovered in Coeur d'Alene territory in 1860, bringing in a flood of fortune-seekers. In 1867, President Andrew Johnson attempted to open up the Tribe's area for settlement by drawing up orders to establish a 250,000 acre reservation for the Tribe. The Coeur d'Alene Tribe was not even informed of this until 1871, when they rejected the offer because the land base was too small.

#### **1873: loss of several million acres**

In 1872 Congress officially ended treaty-making with Indian Tribes, and the Coeur d'Alene's first reservation was established by an executive order of President Ulysses S. Grant in 1873. The reservation described in Grant's order included all of Coeur d'Alene Lake except part of the north shoreline. The surveyed area of this reservation was nearly 600,000 acres.

In return, the Tribe gave up its claims to more than 4 million acres of its territories, and allowed the government to build roads through the reservation. The Tribe was to receive from the government a school, a blacksmith shop, a mill, farm implements, and a payment of \$170,000 for its 4 million acres. But Congress did not ratify this agreement, which meant that the Tribe did not actually receive title to the land or any payment for the lands taken from it.

#### **1891: loss of 200,000 acres**

In 1887, the Tribe reached another agreement with the federal government, which reaffirmed the Tribe's right to the exclusive occupancy of the reservation described in President Grant's 1873 order. Again, the agreement was not ratified, and the Tribe received nothing for its land cessions.

In 1889 government negotiators and the Tribe reached another agreement which would cede the northern part of the reservation described in Grant's executive order, about 185,000 acres. This agreement was ratified by Congress in 1891.

## **1894: loss of 3,000 acres**

In 1894 a one-mile wide strip of the reservation, known as the “Harrison Cession,” was sold to the federal government.

## **1906-1922: Tribal land takings through the Allotment Process**

The Dawes Act is probably the single greatest blow to Tribal land ownership, natural resource ownership, and self-sufficiency, and resulted in the loss of 90 million acres of Tribally-held lands nationwide. Not only were enormous tracts placed in non-Indian ownership, the way in which the lands were allotted was unfair and arbitrary and often the best farmland was saved for homesteaders. Tribal members were forced away from their territorial waters in the process, even burned out when they refused to leave, so that non-Indians and the State of Idaho (with Heyburn Park, as described below) could have this most valuable land.

Lands were made available for fee patent, while Tribal members were required to take parcels of lesser value. The big, successful Reservation farms of Coeur d’Alene families were broken up



Crystal Lake



and made available to homesteaders. Tribal members essentially got what was left over, although the process was supposed to work in the opposite way.

Tribal members who had lived along Coeur d'Alene Lake since time immemorial were pushed off that land so that non-Indians could take title to it. This was a calculated move on the part of the U.S. government to force Tribal members to give up the best farmland, their traditional lake-side camps and homes, and push them to the farthest edge of the Reservation. On top of this, Tribal members could have only 160 acres each.

### **1908-1911: Other Tribal land takings by the federal and state governments**

The Tribe's land holdings were reduced in 1908 with a grant, by Congress, of 40 acres for the St. Maries Cemetery. Again in 1908, Congress approved the withdrawal of nearly 7,000 acres for Heyburn Park. This was supposed to be set aside for a national park, but the park land was deeded by the Congress to the State of Idaho in 1911 for about \$11,000. This amount was spent on so-called "administrative costs" rather than going to the Tribe's account as it was supposed to.

In 1909 Congress granted 160 acres of the Reservation for the use by the University of Idaho.

### **The big picture from contact to 1922:**

#### ***Impoverishment of Indians through loss of Tribal resources: Enrichment of non-Indians through their taking and exploitation of those resources.***

For thousands of years before European contact, the Coeur d'Alene Tribe had 5 million acres of territory to sustain its people, its culture, and its future.

The period between the late 1800's and the 1920's was a "boom" time for the non-Indian economies. Mining and logging on our aboriginal lands made many non-Indians millionaires many times over, and ultimately caused enormous damage to the environment. It is difficult to imagine now the kind of frantic extraction of silver and other valuable minerals and full-speed clear cutting of vast tracts of forestland that occurred during this period, but it happened at a time when people could not conceive of a limit, an end, to the natural resources on the continent. Now, of course, we know better, and it is one of the Coeur d'Alene Tribe's most important efforts to restore and clean up the natural world which was so depleted and damaged by the uncontrolled exploitation of the once abundant natural resources.

### **1922-1953: Life improves (a little bit and very slowly) for Tribes**

In 1924, as the Allotment period was ending, Congress enacted a law giving citizenship to Indians born in the United States. Tribal members with allotments had been granted citizenship through the Allotment Act, and the 1924 act was intended to make sure that all Indians, whether allottees or not, would have the benefits and privileges of U.S. citizenship. Tribal members have dual citizenship, in their Tribes and as U.S. citizens. In 1928, the "Merriam Report" about the conditions of life on Indian reservations was published and gained nationwide attention. This report described in



Sntu'mi "Place for Trading"

detail the dismal failure of federal Indian policy during the Allotment period, and the general failure of the Bureau of Indian Affairs to live up to the promises the federal government made to Tribes. It reported on the lack of health care, of education, of basic services, of food and shelter, on impoverished Indian reservations where the BIA reigned supreme. All this after having given up millions and millions of acres of land and priceless resources, on promises that were never kept.

In 1934, the public outcry about the terrible living conditions of Indian people described in the Merriam Report led the government to pass the Indian Reorganization Act. This law was intended to protect the remaining land base of tribes by ending allotment and providing tribes a "blueprint" for setting up governments and legal structures. The law authorized tribes to organize and adopt constitutions and by-laws, and all but 88 Tribes in the country agreed to do this. The IRA was far from perfect, but it did halt the loss of Tribal ownership of lands and provided a framework for Tribes to re-establish governments-governments based on a non-Indian model, of course, but at least Tribes now could put in place internal organizations which could function in the context of the non-Indian world.

The Coeur d'Alene Tribe adopted its constitution in 1947 and ever since has functioned under a governmental system which is responsible for the health, welfare and safety of the Tribe and for



the protection of Tribal assets. We take our responsibilities very seriously and are continually working to improve the government of our Tribe.

### **1953-1968: A detour into bad times: Termination, Relocation and Public Law 280.**

In the early 1950's, the federal government's position regarding Indian Tribes took a terrible turn, and in 1953 the Congress adopted a Termination Policy, essentially to get rid of Indians as a distinct political group. The Termination Era was tragic for Tribes who were either forced to terminate by law or who agreed to terminate based upon promises of quick cash for their lands.

At the same time, the BIA was trying to get Indians to leave reservations under its "relocation" program. The BIA offered grants to Indians to move to cities and seek work there. The relocation program was for the most part a failure which did not provide lasting employment for relocated Tribal members, but sent them to cities without the necessary training and support they needed to succeed. What it "accomplished," if the Indians stayed, was to increase the number of urban poor who suffered the added trauma of dislocation. Many Coeur d'Alene Tribal families were relocated to big cities such as Chicago, Los Angeles, and Denver, but many of them returned after short and unhappy stays. The Tribal members who did not return joined the ranks of "urban Indians" who have been unable to maintain close connections with Tribal history and culture. Relocation did little to help Indians, and much to hurt Tribes.

In 1953 Congress also passed Public Law 280, which extended state civil and criminal jurisdiction in five states and provided that other states could take such jurisdiction by statute or constitutional amendment. Consent of affected Tribes was not required, and several states, including Idaho, took partial jurisdiction over certain crimes under this authority. But, because the cost of asserting this jurisdiction was often more than states wanted to pay, the result simply was a neglect of law enforcement in Indian Country by Public Law 280 states. Once again, conditions which would cause a public outcry in communities outside the reservation were allowed to persist on the reservation because Indians had little or no political clout with federal and state governments that were indifferent or even hostile to our concerns.

### **1968-Present: Self Determination and Strides by Tribes**

The termination and relocation policies of the 1950's and 1960's were recognized as failures by the late 1960's, and in 1968, Congress passed the Indian Civil Rights Act (ICRA) which provided that most of the civil rights (free speech, free exercise of religion, due process and equal protection), extended to Indian people and Tribal governments, which were required to respect those protections. In a back handed sort of way, the federal government was recognizing that tribal governments were here to stay, and tribal members must be protected from government excesses in the same way that US citizens are protected from their government in the Bill of Rights: the ICRA said the Tribal governments must respect the civil rights of Tribal members.

The most important federal policy shift in favor of Tribal sovereignty, however, came in 1970 with President Richard Nixon's declaration that Tribes should be self-determining governmental entities, and that federal laws and regulations should be enacted to give those governments a maximum degree of authority and autonomy. The Indian Self-Determination and Education Assistance Act, P.L. 93-638 ("638") was passed in 1974 and gave Tribes the authority to enter into contracts to provide important services previously provided directly under the BIA and other federal agencies. The Coeur d'Alene Tribe has entered into many "638" contracts and oversees its own health care, law enforcement, education, natural resources, and other programs.

In 1987, the U.S. Supreme Court case of *Cabazon Band vs. California*, which recognized the sovereign right of tribes to engage in gaming without the interference of state regulation, set the stage for much of the economic development on Indian reservations, which we are now seeing today. Although in 1988 the federal Indian Gaming Regulatory Act required Tribes to enter into gaming compacts with states, many Tribes, including the Coeur d'Alene, reached agreement on gaming and have embarked on a new era of economic enterprise and self-sufficiency. The Coeur d'Alene Tribe opened its casino as a small operation in 1994. The gaming operation has been successful and provides money for Tribal government, schools, libraries and museums on and near the Reservation, and helps us diversify our economy with other business enterprises. Since 1994, the Tribe has given nearly \$5 million of its gaming profits to schools, libraries, museums, and other worthy educational causes. The Tribe is a major employer in both Benewah and Kootenai counties, providing, directly and indirectly, thousands of jobs for Indians and non-Indians. The Tribe benefits all of the community through the operation of the only full-service grocery store in Plummer, the only health-care clinic in town, the only Senior Center, and the only Wellness Center. The Tribe has helped industries such as Plummer Forest Products open and provides jobs in the timber industry. The Tribe, through the construction and operation of a beautiful golf course and expanded hotel is pursuing a goal of making this area a destination resort and recreation hub. Through the diversification of its economic base the Tribe has the goal of bringing of more jobs and revenue to this region.

In 1999, the Tribe was successful in challenging Idaho's claim of ownership of the southern third of Coeur d'Alene Lake and the St. Joe River within the Reservation boundaries. The U.S. Supreme Court recognized that the Tribe never gave up ownership of those waters. Now, the Tribe as their rightful owner has the responsibility to manage those waters.

## **Conclusion:**

The Coeur d'Alene Tribe is increasing the number of jobs available here and supporting education of all children in the area. The Tribe is a good neighbor in this region. Despite the enormous losses the Tribe has suffered, despite the neglect of the federal government and its breaches of trust responsibility, we are making progress. The success of the Coeur d'Alene Tribe, in economic development, education and the restoration of the environment and maintenance of the natural resources on the Reservation, will benefit the entire community.

# Appendix B

## Summary of EAP Assessment Risk Rankings

### SUMMARY OF RISK RANKINGS COMPLETED BY THE EAP STEERING COMMITTEE AND APPROVED BY THE COEUR D'ALENE TRIBAL COUNCIL

Please note that, for the most part, the risk rankings are based upon conditions on and near the Coeur d'Alene Reservation and are not a comparison between the Reservation and other areas in the United States or the world. Also note that concern number 22 Native Wildlife and Fisheries Habitat has been broken into 22A Native Wildlife Habitat and 22B Native Fisheries Habitat because the Steering Committee thinks that wildlife habitat is at a medium risk while fisheries habitat is at an extreme risk.

**Table B.1**

<i>Environmental Concerns</i>		<i>EAP Steering Committee Rankings</i>
<b><i>LAND</i></b>		
1.	Agricultural chemicals	8 MEDIUM/3 HIGH
2.	Energy production and consumption	MEDIUM
3.	Food contamination	MEDIUM
4.	Tribal cultural food and medicines contamination	EXTREME
5.	Forest health	HIGH
6.	Hazardous waste	MEDIUM
7.	Human population growth and development patterns	EXTREME
8.	Roads	HIGH
9.	Solid waste generation and disposal	MEDIUM
<b><i>AIR</i></b>		
10.	Indoor air pollution	MEDIUM
11.	Outdoor air pollution	MEDIUM
12.	Localized effects of atmospheric changes	LOW
13.	Localized effects of Hanford Nuclear Reservation	HIGH

## WATER

14.	Drinking water quality and contamination	HIGH
15.	Groundwater contamination	HIGH
16.	Hydrologic changes	HIGH
17.	Non-point source surface water pollution	HIGH
18.	Point source surface water pollution	MEDIUM

## MULTI-MEDIA

19.	Wetlands	6 MEDIUM/ 6 EXTREME
20.	Native plant and animal populations and species diversity	HIGH
21.	Tribal culturally-important species' populations and diversity	EXTREME
22A.	Native wildlife habitat	MEDIUM
22B.	Native fisheries habitat	EXTREME
23.	Non-native plant and animal species	HIGH
24.	Soil productivity	HIGH
25.	Tribal cultural sites	EXTREME



Hnch'mqinkwe' "Surface of the Head of the Water"

## **Appendix C**

### **Public Involvement and Agency Consultation**

#### **C.0: Introduction**

This Appendix was prepared to supplement Chapter 6, List of Agencies, Organizations and Persons. This Appendix provides details on the content of the input from the public at various meetings and workshops that were held for the development of the Coeur d'Alene Tribe's Integrated Resource Management Plan (IRMP) Draft Programmatic Environmental Impact Statement (DPEIS). This Appendix also provides additional detail on coordination and consultations with agencies in preparation of the IRMP DPEIS.

#### **C.1: First Series of Integrated Resource Management Plan public meetings**

The Coeur d'Alene Tribe's Environmental Action Plan (EAP) Project held its first series of IRMP public meetings on and near the Reservation in April and May of 2001. One meeting was held in each of the four communities of Plummer, St. Maries, Worley and Tensed. A Tribal member/Native American meeting was also held at the Tribal Casino's Coeur d'Alene Conference Room. The agenda and format was the same at each of the meetings.

##### ***The first series of IRMP public meetings was held in order to:***

1. Provide background on the Tribe's EAP Project,
2. Request public input on the purpose and need and proposed methods to develop an IRMP,
3. Discuss community involvement in developing the IRMP, and
4. Request volunteers to be members on the IRMP Community Advisory Committee

Combined, approximately 49 people attended the meetings. Compared to other EAP public meetings, the turnout was moderate. The public meetings were announced in local newspapers (St. Maries Gazette, Idaho Spokesman-Review, the Coeur d'Alene Press and Council Fires for the Tribal member meeting). A direct mailing was sent to all local Tribal members and to the EAP public mailing list of over 350 addresses. Also, fliers were posted in public places in Worley, Plummer and Tensed about a week in advance of the meetings.

The discussion items during the first series of IRMP meetings are contained below:

## **Worley Public Meeting—Monday, April 23rd, 2001**

### **New Worley Longhouse**

- \* Will the IRMP be a long-term Tribal government policy that will require conformity from anything else that goes on? Is that right?
- \* (response) It's a policy rather than regulations and laws.
- \* The IRMP organizational chart—it looks like there could be hidden agendas that the public is not aware of because of the hierarchy in the organizational chart. Keeping decisions away from being made at the ground level.
- \* (response) It's a community process even though the Tribal Council has the final decision-making authority.
- \* There are people who fear the Tribe, fear additional regulations.
- \* (response) The Tribe is making a large effort to involve the non-Tribal community in this planning process.
- \* (response) This is local people working on issues, not federal levels.
- \* Even the title "Cd'A Tribe's " is alienating. Is there a way to make it clear that the plan will belong to everyone on the Reservation?
- \* Another suggestion—organizational chart has four layers closed to non-Tribal folks—some possible suggestions: Move the Community Advisory Committee to be on the same line as the Tribal Council, similar to the Lake Board organization.
- \* Have Tribal Council representatives at the public meetings or read an open letter from the Tribal Council at the public meetings.
- \* People are seeing the Tribe as the wizard behind the curtain in the "Wizard of Oz"—people want to see Tribal Council members, not just staff, at these meetings.
- \* What level of effort will the Community Advisory Group take?
- \* (response) It's going to be up to the Committee.
- \* The Tribal Farm—it would be good to see the Tribal Farm manager be involved in the IRMP process.
- \* People dump stuff on Tribal Forest lands (ovens, washing machines) and no one will pick them up and dispose of them properly.
- \* It's very evident that all of the planners on the Reservation need to know what's going on (i.e. the matrix table that the NRCS Inter-Agency Group has)—the need for coordination is there that speaks to the purpose and need for the IRMP—all impacts on the environment need to be coordinated.
- \* The Integrated Management Plan is essential—without a plan, things are going to fall apart.
- \* Get Terry Doupe and the Conservation Districts involved in this IRMP process.



**Plummer Public Meeting—Wednesday, April 25th, 2001**  
**Coeur d’Alene Tribal Wellness Center**

- \* How do you envision the Tribe working (communicating/interfaces) with all of the other agencies located in the aboriginal territory? How will the conflicts be resolved between the Tribe’s plan and other plans? You need to understand these issues (i.e. air and water quality standards).
- \* (response) First complete the Tribe’s plan and then detailed coordination if conflicts arise—also want participation from other agencies in the process to help with this.
- \* Conflicts come out in the ordinances.
- \* (response) The IRMP will not have an ordinance in it.
- \* Jurisdictional issues on the Reservation are unclear from agency to agency—non-Tribal folks don’t have representation on the Tribal Council yet some agencies say “check with the Tribe first”. Will the IRMP process clear this up?
- \* (response) The IRMP might shed some light but won’t clear up this question. This is a difficult, complex question.
- \* People like to know where to go to get their permits.
- \* The key to the whole thing is working together—and acting like one society (Tribal and non-Tribal).
- \* Pleased with the IRMP because 1) looking out 100 years into the future for a planning horizon, and 2) 20 year planning timeline for goals and objectives (seems like the *EAP Assessment* report only looked back to the past)
- \* When you go through the NEPA process, is that when economic impacts of the plan will be taken into account?
- \* (response) Yes, “local impact analysis” will probably be the method used to compare economic impacts.
- \* Will the next phase (implementation) include more specific guidelines in it?
- \* (response) To be determined, but probably. The Tribe, in other Natural Resource Department Programs, will be working on guidelines because of mandates by EPA and other agencies.
- \* It’s a problem getting to all of these federal agencies—if more local people (Tribal and non-Tribal) because involved, would the feds pay attention to us? Would a unified presence influence these agencies?
- \* (response) To a certain extent, this planning process could influence federal and other government/agency/business/individual actions and policy.
- \* Need to prioritize the plan’s 28 resource categories according to what is able to be changed for the better—I’m a pragmatist—need to see results.
- \* The Highway 95 re-alignment project is going to destroy wildlife habitat and the animals are going to have to find new places to live.

- \* There is water contamination near Spokane Point in the Lake—cans, trash in the Lake.
- \* What is the status of Highway 5 project?
- \* (response) Environmental Assessment is in process.
- \* Would like to see a bicycle path between Plummer and Worley.
- \* This is an incredible project and an honor to have input into it as a non-Tribal member.
- \* How do we coordinate all of our plans and planning processes?

**St. Maries Public Meeting—Monday, April 30th, 2001**  
**Avista Auditorium**

- \* How do we plan to investigate each of these resource categories? Probably could find experts in each of these categories. You may not need to hire people, you may have local help as volunteers. I don't live here but own land here on the Reservation.
- \* I am particularly concerned about the rails-to-trails project.
- \* How will the IRMP Community Advisory Committee members be chosen and how will the meetings be announced?
- \* Bothered about hearing about this meeting through the grapevine-people need to know this is going on.
- \* Who is funding all of this and who is funding the match?
- \* We need to know how much funding is going into this.
- \* Who decides how the grant money is spent?
- \* When talking about the Reservation, what are you talking about specifically? Boundaries? Including private land within the boundaries of the Reservation?
- \* I live in milestrip. What are the Tribe's intentions relating to the milestrip? (response) Contact Howard Funke (former contact was Ray Givens), Tribal attorney-208-667-5486, at Funke and Work in Coeur d'Alene.
- \* The biggest environmental damage we have is related to mining- why was it excluded in the Assessment? Will it be excluded in the plan? It should be included.
- \* If a fee land owner has timber, would this plan include their lands?
- \* Is the long-range goal of the Tribe to regulate or not to regulate? This is an important issue to property owners.
- \* With EPA involved, if a contaminated site is found, is EPA automatically involved?
- \* Why are they (the Tribe) developing these plans for the aboriginal territory and the Reservation?
- \* Talking about all of these regulations—will there be regulations for every environmental category—enforcement on all or just part of the Reservation? Years ago, Tribe took all of their laws from the BIA-now seems like EPA has more money, now talking about EPA regulations. Is this driven by money or for the best of the environment?

- \* Are we going to have to have a permit to plow our own land? I don't like it. It's infringing on my private property rights.
- \* I would like to see the Tribe between the local property owners and EPA—Tribe has more morality than the federal government.
- \* I see a tremendous public relations problem—pie in the sky—no regulations, how do you get people to go this way? How do you get it to work? Would like to see the environment taken care of—it hasn't been. You've (the Tribe) got to return calls and follow-up with people. You've got to communicate.
- \* Tribe has applied for "Treatment as A State" with EPA. What is status of this?
- \* Concerned about farms being closed (for something as picky as) cow urine running into Lake. (response) Call Scott Fields at 686-1800, Tribal Water Resource Manager, for water quality issues.
- \* Private property owners have been excluded from all kinds of business such as rails-to-trails. Great resentment because of this. Tribe needs to do something about it. You will need everyone to implement this plan.
- \* Case in point: in the rails to trails document, the people along the Lake from Harrison to Chatcolet were not included. The report said that, "no statistics available", that there are "no roads"—need to correct this and get in touch with the right facts.
- \* Federal government not good at dealing with small groups of people—want the Tribe to listen to their neighbors and give that input to federal government.
- \* Tribe should be the one to involve the private property owners in things like the Rails-to-Trails project—federal government won't do this.
- \* We are paying most of the bills for what you are doing and the Tribal Council has the approval. If we don't have any say, then we shouldn't be footing the bill for it. We foot bills for infrastructure on the Reservation and public services. This is lopsided. Makes it hard to accept what the Tribe is doing.
- \* Is there written proof of how the Reservation land was sold against the treaty and executive order? If so, share it.
- \* These folks want to be included in the process.
- \* Do you work with the County Land Use Plans?
- \* What will be the method for studying and developing the management plan?
- \* At each step—visioning, draft alternatives, select preferred alternatives, develop EA or EIA, and plan adoption—will you have public meetings?
- \* Visioning for each resource category or one that covers all of them?
- \* How much input do you get from the Benewah County Commissioners?
- \* You will be including the aboriginal territory some in the plan?
- \* Is the Nez Perce Tribe doing this same kind of planning?

- \* What kind of clout do the tribes have with sovereignty and EPA?
- \* (response) Tribes compete for funding that fund this program-we are fortunate to have this funding.
- \* Earlier statement was broad and included all tribes.
- \* The taxpayers are subsidizing all tribes.
- \* Tiffany Allgood's email address is tallgood@cdatribe-nsn.gov
- \* Private property owners want to be treated as individuals, just as the tribes want to be treated individually.
- \* The Tribe has been giving money to the local schools and are sharing -it's tremendous.
- \* BMC is positive, too.

### **Tensed Public Meeting—Tuesday, May 1st, 2001**

#### **Tensed Community Center**

- \* What is the Community Advisory Committee going to do?
- \* Have you heard anything about flood control on Hangman Creek? There's supposed to be a study about it—always a danger of flooding.
- \* Old Sanders Road getting ruined from flooding. The road should be ditched in places. You have to go all the way around.
- \* If the BIA and the County worked together, this might be able to be funded. Tribal School buses travel on this route.
- \* Five to six years ago—NRCS, the Tribe, FSA all worked on Hangman Creek from head-waters to State Line and Spokane. No funding was available.
- \* Sheep Creek Road by the dumpster—the culvert is plugged; 1/4 mile from highway, causing the road to cave-in. Some flags were just put there.
- \* The time to assess Hangman Creek is during the flood stage.
- \* You need to assess it while flying above it -it happens fast.
- \* The Tribal Farm could give a lot of information on this. Contact Mark Addy at NRCS, too.
- \* The *EAP Assessment* concerns list, are they the same as the IRMP resource categories?
- \* In the last 15 years, have seen a takeover by hawkweed in the timbered areas.
- \* Heard a lot of pros and cons about drinking water around Tensed. Can't drink the water at home, have to haul it in. Well is too shallow-has iron and nitrates in it. Water in Tensed smells like sulfur.
- \* For Tribal housing, the wells are dug only deep enough to hit water; quality is poor. Good for Tribe's water quality specialist to assist all Reservation residents with safe drinking water.
- \* By the time the Tribe is done with the IRMP, do you think that going to the Tribe for permits could take the place of going to all the federal and other agencies?

- \* Have been working with Idaho State Transportation on widening the road on Highway 95 near Moctilme and Marsh Hill—need to involve landowners in this -also working on Pedee Hill for next year.
- \* Where's the funding coming from for the road work?
- \* Hardly any changes in Highway 95 since the 1940's.
- \* Everyone has to do their share and they should vote.
- \* Roads funding -we used to meet with BIA, the Counties, Gateway Highway District, State Senators (Ernie Gaffney), we agreed to help each other with funding and work. If the whole community gets together, then we can get funding.
- \* Road maintenance-Windfall Pass is maintained by Tribe and Gateway District -the Tribe and Gateway should meet and decide who's going to do what and make it logical.
- \* There's an abandoned grader on Windfall Pass and it's been torn down for parts-what a waste. It could be used for the roads.
- \* The transmission went out 3 times on that grader, replaced it 3 times.
- \* Economics never seem to play a part in EPA's Assessments-economics must be taken into consideration in the IRMP.
- \* Prices of wheat vs. prices of grass; want to get rid of grass but if not for grass, a lot of farmers would be broke right now.
- \* Meeting in Coeur d'Alene- complaints about grass burning- the complaint is coming from the metropolitan area- local folks are used to the smoke- need grass right now.
- \* Reservation needs grass to stabilize soils. Many soil types are very prone to erosion.
- \* Lake Creek is running clear even during rainstorm due to grass crop reducing erosion.
- \* Since January this year, noticed that the soil moisture is very low-in danger of forest fires- last couple of days of rain might have helped some.
- \* The threat of forest fire-even after the rain, 87% moisture. Today, down to 30%. Conditions right now are like late August.

### **Tribal Member/Native American Public Meeting—May 8th, 2001**

#### **Tribal Casino—Coeur d'Alene Room**

- \* What are you really looking for in input that will make an impact? Take another 2 years to come up with a plan? What came out of the other 4 public meetings? When it comes to implementation, will there be changes in the environment and resources?
- \* Is there any part of this plan where there would be preservation areas on the Reservation and/or aboriginal territory and how will it be enforced? The mountain places—how do we know it will remain the way it is? Could be over-planned.
- \* In Montana, Salish Tribe has a gatekeeper for Tribal lands to only let Tribal people in. Will it be similar to this at Coeur d'Alene?

- \* Problem is the checkerboard ownership with control of Reservation.
- \* Once people sell to non-Tribal members and the Tribe buys it back, they want 3 times the money.
- \* Tribe needs to access its lands through other owners' property and vice versa.
- \* People were destitute and sold their land in 50's and 60's.
- \* How supportive is the Tribal Council about this plan? If they're protecting the environment why are they building on the wetlands?
- \* Osprey Housing impacts—NR Director heard from some Tribal members about impacts on the environment.
- \* What's happening with Highway 95 project?
- \* Starting to build a tunnel and detour road with the Casino this year. If it effects the environment, your office should be involved.
- \* The Advisory Committee goal? Is it to work with all of the issues like we're discussing now?
- \* How effective is the planning group going to be? Do we have power with the group or does Tribal Council have it? It's going to be a lot of effort. What happens to the plans that just sit? The agency road looks pretty bad.
- \* Is there a "crisis" now, that you're going to start planning about now? Will we be introduced to it all at once?
- \* We planted trees and shrubs on Tribal allotments and then the farmer plowed them under to the creek. The lease needs re-writing.
- \* Potlatch and a lot of logging companies own land on the Reservation. Nothing is replanted; it's overgrown with brush. It should be mandatory to replant.
- \* How did the Council get to build this Casino on a wetland?
- \* Isn't the Wellness Center built on wetlands?
- \* Council can't say they protect wetlands.
- \* Proposed hatchery built on a hill above the 100-year floodplain.
- \* Are we saving our Reservation? We're known for conserving our wetlands. When it comes to Council meetings, we're in the dark. The environment should be on the agenda every time. Planning & Development should be on the agenda more. All of these things are coming out of nowhere. Like Ironman Safe Co.
- \* Potlatch Mill is on a wetland; sludge is coming into the Lake from the mill. Agreement with the Tribe to lease that property. Glue and wood treatment was stopped.
- \* What's happening with the creosote issue?
- \* EPA comes out when they're called.
- \* Plummer Air Quality issue? Is this getting resolved?
- \* Did any Council member read the *EAP Assessment* report?
- \* Is the Environmental Programs Office involved with the bed and banks issue?



- \* What is the purpose of the whole plan?
- \* Will the new Highway 95 make clean-up along the sides of the Highway harder or easier?
- \* How do other agencies fit into this? And will funding be coordinated by this?
- \* EPA was responsible for making farmers move tanks above-ground. Septic tanks used to drain into Lake. Can EPA do anything about this? Are Tribal members exempt from gas tank regulations.
- \* The IRMP can give everyone ideas, put our heads together, and if Council wants to pass it, great. I think Council needs to be confronted steadily with these issues. It sounds like Council will be there now as a paid Council. The EPO should be on the agenda often.
- \* What about the house boats on the Lake? How are they being regulated? Do they pay rent? How is sewage being treated?
- \* Nice that you invited us-good information. A lot of care and concern.
- \* Thought a buffer for streams was passed by Tribal Council in Hangman Creek.
- \* Recently, an irate farmer called fisheries.
- \* Cattle in Sheep Creek and any waterway on the Reservation that you can think of. Keep cattle/horse waste out of the creek.
- \* What will happen if the EAP fails, the trees are cut down, the animals are gone, will the Indians have to leave the Reservation?
- \* There's a connection between the trees, animals and the Tribe. We won't let that happen!

## **C.2 IRMP Future Focus Workshops and Questionnaires**

The first IRMP Future Focus workshop was held on June 5, 2002, from 12:00 p.m. to 8:00 p.m. at the Coeur d'Alene Tribal Casino located in Worley, ID. Twenty-nine people attended the meeting. The second workshop was held on June 12, 2002 from 12:00 p.m. to 8:00 p.m. at the Tribal Wellness Center located in Plummer, ID. Twenty-three people attended the meeting. The third workshop was held on June 19, 2002 from 12:00 p.m. to 8:00 p.m. at the Elks Lodge located in St. Maries, ID. Eighteen members attended the workshop. Workshop attendees included landowners, retired landowners, homeowners and Tribal members. The IRMP Future Focus Workshops provided information on the IRMP planning process and requested input from the public on what they would like to see for the future of the natural, environmental and cultural resources on the Reservation and in the Tribe's aboriginal territory. Most of the attendees inquired about the IRMP questionnaires, which were made available at the workshops. The workshops also provided an educational background to attendees.

The IRMP Future Focus Questionnaire that was sent to all Reservation residents (5,881 questionnaires distributed by mail) and Tribal members (909 questionnaires distributed by mail) and made available at the IRMP Future Focus Workshops is included below. A total of 102 questionnaires were filled out and returned to the Tribe.



**“FUTURE FOCUS” QUESTIONNAIRE  
FOR THE INTEGRATED RESOURCE MANAGEMENT PLAN (IRMP)  
Also known as *STQHESIPLE’* (The Future Course of Our Renewal)**

The Coeur d'Alene Tribe is in the beginning stages of developing its first Integrated Resource Management Plan (also known as *stqhesiple’* – the future course of our renewal). This plan will primarily address the future of the Coeur d'Alene Reservation but will also address the Tribe's aboriginal territory. The Tribe is requesting your assistance in answering this questionnaire so that Tribal, public, private and community input can be collected and utilized to develop the Integrated Resource Management Plan. You don't need to have special knowledge or expertise to fill out this questionnaire. We are asking what you think or feel about any or all of the resources. No matter how much or how little of the questionnaire you fill out, returning your ideas will help the Tribe understand what you think.

*This questionnaire will be kept confidential* and all of the responses will be used to assist the Tribe in developing several different management alternatives to choose from in the Integrated Resource Management Plan process.

Although the Integrated Resource Management Plan is being developed by the Coeur d'Alene Tribe and will contain the Tribe's management direction for the natural, environmental and cultural resources of the Tribe, Reservation and aboriginal territory, it is important to the Tribe to understand how everyone feels about the future of the Reservation. This will allow the Tribe to better understand how we can work together to achieve a successful and environmentally healthy future for all.

Attached you will find a fact sheet and three reference maps for you to use to answer questions F and G regarding future land uses (please keep the maps).

Please fill out the questionnaire and return it by June 28, 2002 to:

The Coeur d'Alene Tribe  
Attention: Tiffany Allgood, EAP Coordinator  
P.O. Box 408, 850 A Street  
Plummer, ID 83851  
(208) 686-8802 phone  
(208) 686-8302 fax  
tallgood1@earthlink.net

*Or return this questionnaire between 7:30am to 4pm, Monday through Friday, at the Tribal Headquarters Reception Desk at 850 A Street in Plummer, Attention: Tiffany Allgood.*

Would you like to be added to the IRMP monthly mailing list? Yes No  
If so, please include your name and address here:

Do you live within the Coeur d'Alene Reservation boundaries? Yes No  
What is your occupation? \_\_\_\_\_

Are you a member of a federally recognized Indian tribe? Yes No

If so, which tribe? \_\_\_\_\_

**A. Which natural resources on the Coeur d'Alene Reservation do you currently use? (Place a check mark beside those that you use). Which are the most important to you? (Please rank these resources in terms of their importance to you with a rank of 1 = very high, 2 = high, 3 = moderate, 4 = low and 5 = very low).**

<b>Resource Category</b>	<b>Currently Use</b>	<b>Rank</b>
Soil		
Water		
Agriculture		
Fish		
Lake Coeur d'Alene		
Forest		
Wetlands		
Air		
Wildlife		
Recreational Areas		
Minerals		
Streamside areas (riparian)		

**B. Is your livelihood or subsistence dependent on natural resources? Yes or No. Please circle or list additional natural resources that you depend upon: Farming, fishing, hunting, berry picking, timber harvest, mining, recreational guiding, etc.**

**C. Is your livelihood or subsistence supplemented by natural resources? Yes or No. Please circle or list additional natural resources that you depend upon: Farming, fishing, hunting, berry picking, timber harvest, mining, recreational guiding, etc.**

**D. Of the natural resources that you identified in questions D & E, does your lifestyle include regular use, moderate use, occasional use, or seldom any use of those resources? Please list them and identify your level of use.**

**E. Please circle the statement that best completes the sentence below from your perspective:**

1. **In 20 to 100 years, I would like the Coeur d'Alene Reservation to be:**
  - a. **Very similar to the way it is now, mostly rural with a small population.**
  - b. **Somewhat different than the way it is now, heading towards being suburbanized with a few thousand more people.**
  - c. **Very different than the way it is now, suburbanized and urbanized, with thousands more people.**

**F. In order to describe what you would like the land, air, water, communities and future land uses on the Coeur d'Alene Reservation to be in 20 to 100 years, please fill in the table below.**

<b>Land Use Type</b>	<b>Using Map #1 of the Coeur d'Alene Reservation, please fill in the letter and number of the grid(s) areas that are suited for each land use type (Note: there may be more than one use for each grid area). For example, if there was a land use type of "airport", then you might write down that grid B5 on map #1 is a good place for that land use because it is relatively flat there.</b>
<b>Example: Airport</b>	<b>B5 because it is a flat area.</b>
<b>Housing Development</b>	
<b>Subsistence (hunting, fishing, harvesting roots and berries, etc.)</b>	
<b>Industrial Development</b>	
<b>Community/Government Development</b>	
<b>Commercial Development</b>	
<b>Recreation (hunting, fishing, camping, hiking, etc.)</b>	
<b>Forest Management</b>	

<b>Wetlands (conservation and restoration) Refer to map #2 for an idea of where wetlands used to be located and are currently located on the Reservation)</b>	
<b>Solid and Hazardous Waste (storage and/or transfer)</b>	
<b>Energy Production (solar, wind, hydropower, co-generation, etc.)</b>	
<b>Conservation (fisheries and wildlife habitat, natural areas, biodiversity)</b>	
<b>Agricultural</b>	
<b>Mining</b>	

***G. In order to describe what you would like the land, air, water, communities and future land uses in the Coeur d'Alene Tribe's aboriginal territory to be in 20 to 100 years, please fill in the table below.***

<b>Land Use Type</b>	<b>Using Map #3 of the Coeur d'Alene Tribe's Aboriginal Territory, please fill in the letter and number of the grid(s) areas that are suited for each land use type (Note: there may be more than one use for each grid area).</b>
<b>Developmental</b>	
<b>Recreational</b>	
<b>Ecological</b>	
<b>Agricultural</b>	
<b>Others?</b>	

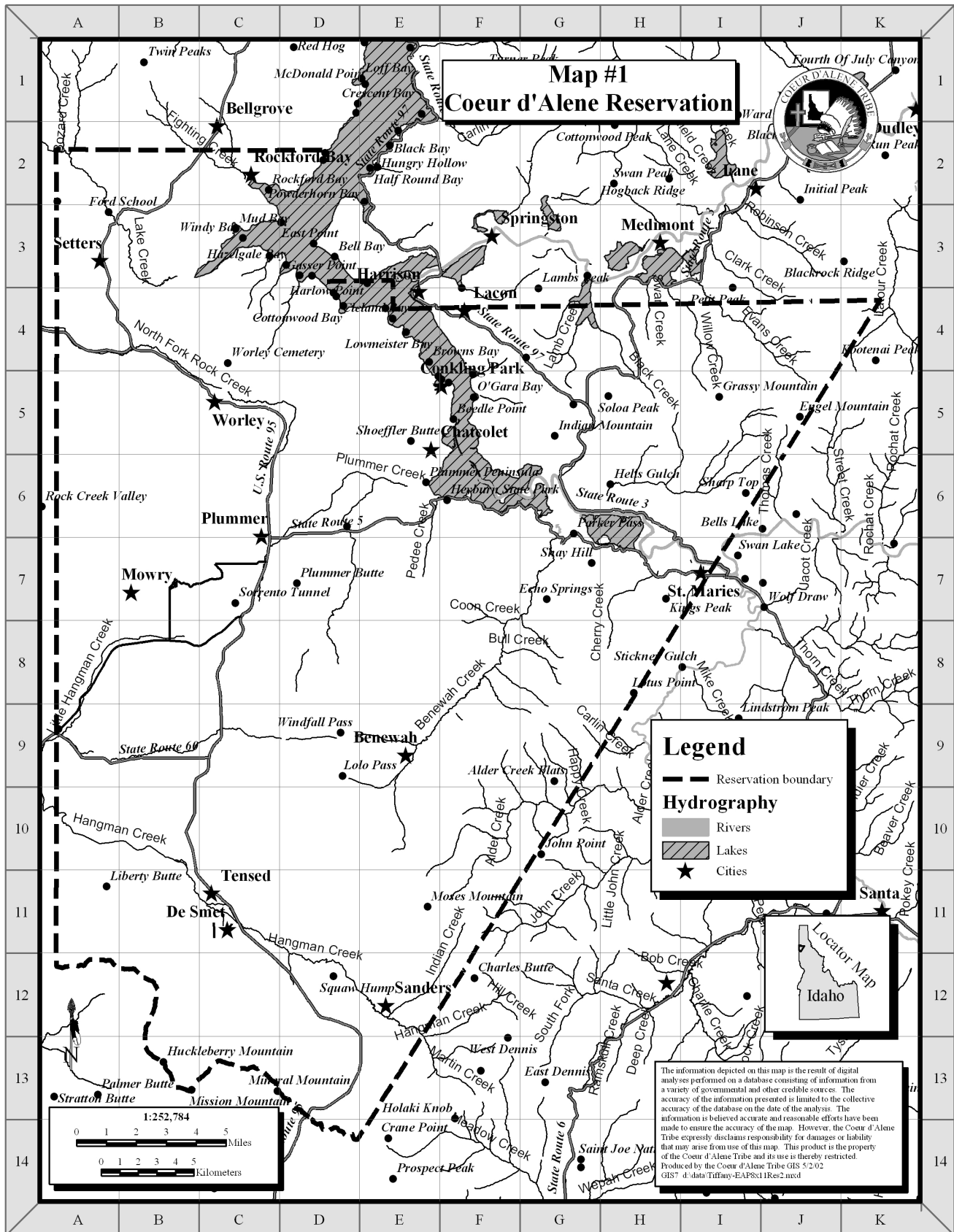
***H. Please explain any issues and/or what you like and what you would like changed about the condition or management of the IRMP Resource Categories listed below. Then please prioritize your comments.***

<b>IRMP Resource Categories</b>	<b>What do you like and what to keep the same about the condition of this resource and/or how it is managed?</b>	<b>What would you like to change about the condition of this resource or how it is managed?</b>	<b>PRIORITY 1 = very high 2 = high 3 = moderate 4 = low</b>
<b><i>Agriculture</i></b>			
<b><i>Air</i></b>			
<b><i>Biological Diversity (all living things)</i></b>			
<b><i>Commercial Development</i></b>			
<b><i>Community/ Government Development</i></b>			
<b><i>Culture (protection of historical artifacts, sacred sites and traditional</i></b>			
<b><i>Energy</i></b>			
<b><i>Environmental/ Public Health</i></b>			
<b><i>Fire</i></b>			
<b><i>Fisheries</i></b>			
<b><i>Forest</i></b>			
<b><i>Housing</i></b>			
<b><i>Industrial Development</i></b>			
<b><i>Lake Coeur d'Alene</i></b>			

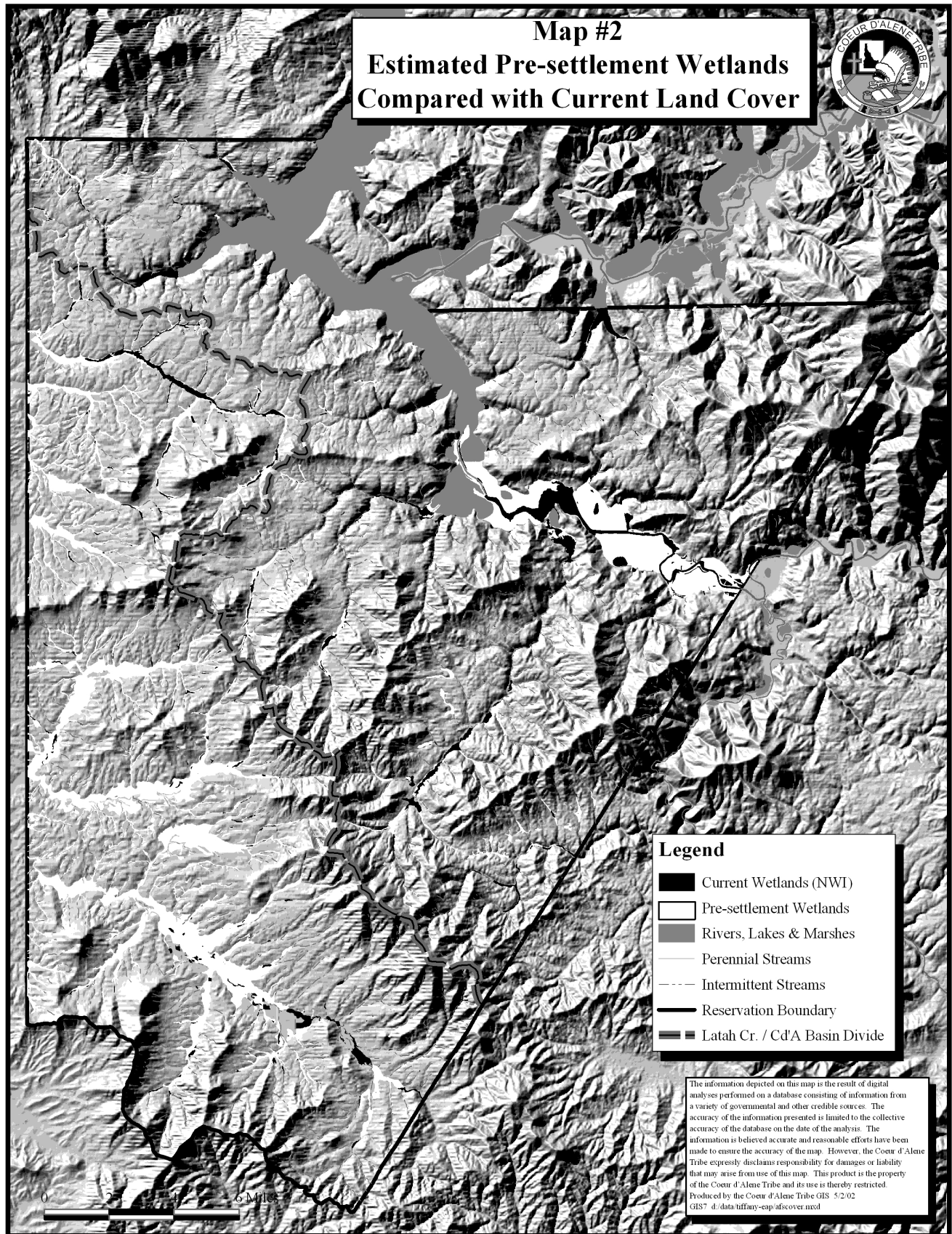


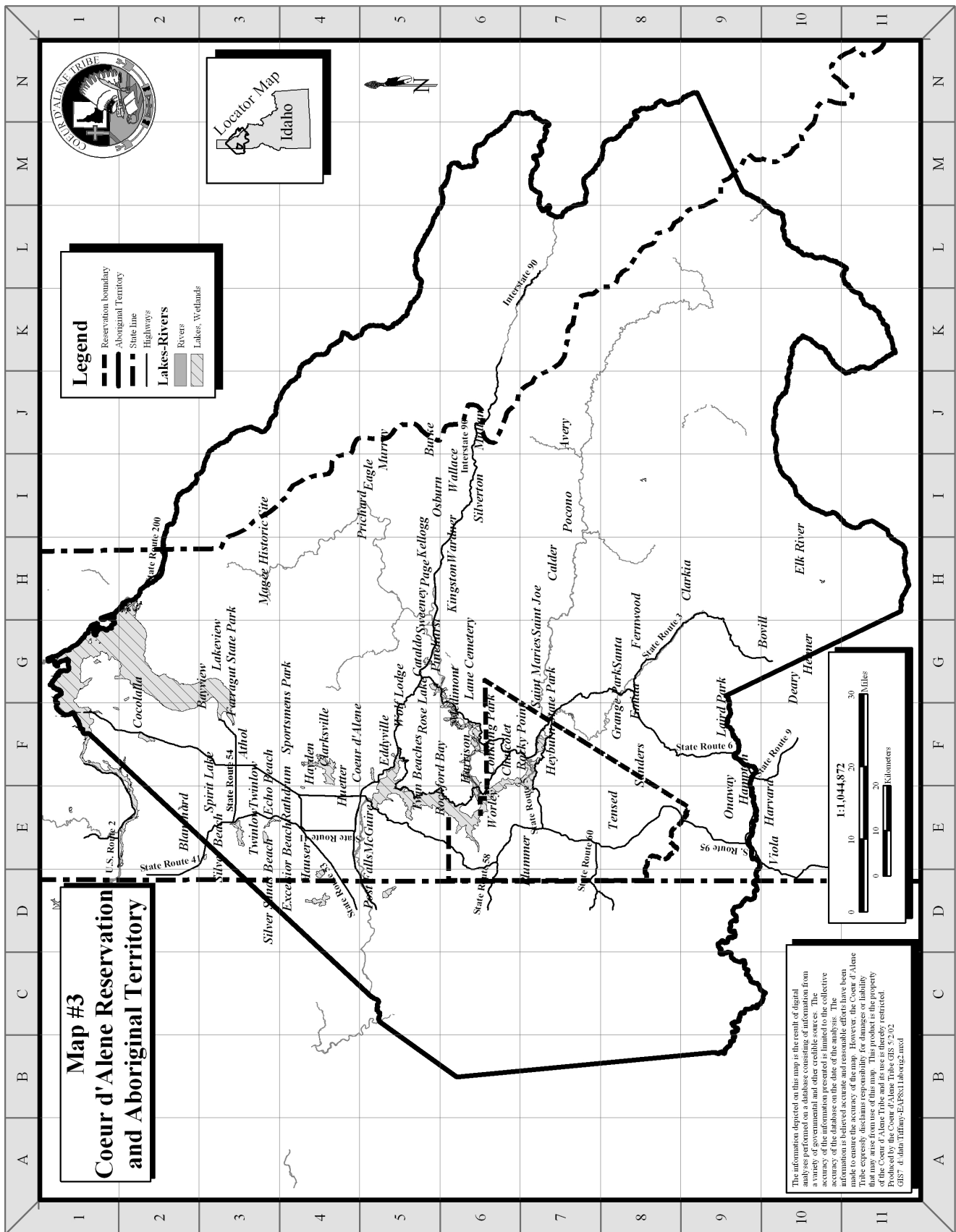
<b>IRMP Resource Categories</b>	<b><u>What do you like and what to keep the same about the condition of this resource and/or how it is managed?</u></b>	<b><u>What would you like to change about the condition of this resource or how it is managed?</u></b>	<b>PRIORITY 1 = very high 2 = high 3 = moderate 4 = low</b>
<b><i>Landscape (applies to the entire aboriginal territory)</i></b>			
<b><i>Minerals</i></b>			
<b><i>Mining</i></b>			
<b><i>Pesticides</i></b>			
<b><i>Power &amp; Telecommunications Infrastructure</i></b>			
<b><i>Recreation</i></b>			
<b><i>Riparian (streamside areas)</i></b>			
<b><i>Soil</i></b>			
<b><i>Solid and Hazardous Waste</i></b>			
<b><i>Transportation Infrastructure</i></b>			
<b><i>Water</i></b>			
<b><i>Water &amp; Sewer Infrastructure</i></b>			
<b><i>Wetlands</i></b>			
<b><i>Wildlife</i></b>			

***J. If you have any other comments, ideas, historical accounts, insights, stories, or information that you would like to share, please feel free to do so here.***











The summary of the responses to the IRMP Future Focus Questionnaires is included below and are based on 102 responses.

- 28% - Retired
- 26% - live outside Reservation boundaries
- 20% - live in St. Maries
- 22% - Members of a federally recognized Indian Tribe
- 31% - Livelihood dependent on natural resources
- 47% - Livelihood supplemented by natural resources
- 77% - Reservation should stay the same (rural)
- 21% - somewhat change (suburban)
- 2% - change greatly (urban)
- 19% - moderate use of natural resources/recreation
- 35% - regular use
- 12% - occasional or seldom use

**Table C.1 Results of the priorities by resource category (1 is highest priority):**

<i>Resource Category</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>Total</i>
Agriculture	26	13	8	2	4	53
Air	43	8	4	1	2	58
Biological Diversity	24	13	8	2	5	52
Commercial Development	21	12	12	5	11	61
Community/Government Development	17	18	10	1	2	48
Culture	22	16	9	4	4	55
Energy	15	15	15	3	4	52
Environmental/Public Health	21	13	8	2	6	50
Fire	15	15	11		3	44
Fisheries	14	12	16	3	6	51
Forest	23	24	7	1	3	58
Housing	10	7	20	4	6	47
Industrial Development	18	13	8	5	7	51
Coeur d'Alene Lake	31	18	8	1	1	59
Landscape	12	14	10	3	3	42
Minerals	6	7	9	12	4	38
Mining	5	8	10	8	7	38
Pesticides	19	9	14	1	1	44
Power & Telecommunications Infrastructure	7	15	9	4	3	38
Recreation	9	26	11	1		47
Riparian	17	17	6	1	1	42
Soil	15	14	7	3		39
Solid and Hazardous Waste	17	12	9	1	2	41
Transportation Infrastructure	13	15	8	3	1	40
Water	42	7	1		1	51
Water & Sewer Infrastructure	14	9	3	2	3	31
Wetlands	18	8	6	2	3	37
Wildlife	23	17	5	1	1	47

**Table C.2 Results of land use designations (top 5 responses) - Aboriginal map**

<i>Land Use Type</i>	<i>Map Grid</i>				
<b>Developmental</b> North half of the Reservation along I-95 to Rathdrum, Coeur d'Alene and Hayden area	E4	E5	E6	E7	F4
<b>Recreational</b> From Lake Pend d'Oreille to southern part of Lake CDA, east of I-95 in undeveloped areas	E6	F6	G2–G5 (G2–G5 tied for third)		
<b>Ecological</b> Southern CDA Lake, between Plummer and St. Maries and east along St. Maries and St. Joe Rivers	E6	F6	F7	G7	H7
<b>Agricultural</b> Worley, Plummer, Tensed, DeSmet and west to Aboriginal Boundary	C5–C6	C8	D6–D9	E6–E8	
		All except E6-E8 tied for third			
<b>Others?</b> —Forestry		All areas (1 vote)			

**Table C.3 Results of the land use designations (top 5 responses) - Reservation map**

<i>Land Use Type</i>	<i>Map Grid</i>				
<b>Housing Development</b> I-95 Corridor and St. Maries	B5 Tied 3rd	C5-C7		C11	H7 Tied 3rd
<b>Subsistence</b> Alder and Benewah Creek area		F8–F10		G8–G9	
<b>Industrial Development</b> I-95 corridor and St. Maries	C5	C6	C7	C11	I7
<b>Community/Government Development</b> Highway 95 corridor and St. Maries	C5	C6	C7	C11	I7
<b>Commercial Development</b> Highway 95 corridor and St. Maries	C5	C6	C7	C11	I7
<b>Recreation</b> S. Lake CDA and St. Maries	D3 Tied 4th	E4–E6 Tied 4th		F4–F6	I7 Tied 4th
<b>Forest Management</b> Benewah creek, CDA Lake south to Moses Mountain, Soloa peak area	E9	E10 Tied 2nd	E11 Tied 2nd	F6–F11 Tied 2nd	H5 Tied 2nd



<i>Land Use Type</i>	<i>Map Grid</i>				
<b>Wetlands</b>					
Southern end of Lake CDA, Hells Gulch, Parker Pass and Cherry Creek	E6	F6	G6	H6	H7
<b>Solid and Hazardous Waste</b>					
Fighting Creek, Plummer, Tensed, DeSmet and St. Maries	B2	C6	C7	C11	I7
<b>Energy Production</b>					
Worley and Plummer area, St. Maries	B5	C4 Tied 4th	C5	C6-C7	I7 Tied 4th
<b>Conservation</b>					
Harrison south to Benewah Creek, Conklin Park south to Alder Creek and Parker Pass area	E4-E9	F5-F9 All tied for 3rd except E6 and F6			G6-G9
<b>Agricultural</b>					
Reservation border on west side	A5-A6 Tied 3rd	B5-B6	B11 Tied 3rd	C6	C10 and D5 Tied 3rd
<b>Mining</b>					
West of Plummer, Black Creek south to Lotus Point, Willow Creek south to St. Maries, Evans Creek south to Jacot Creek and Kootenai Peak area	B6	H4-H8	I4-I7	J4-J6	K4
All tied for second except for I7, which came in first					

### C.3: IRMP Formal Public Scoping

The discussion during the IRMP scoping meetings held on October 8th and 9th, 2002 is included below. The Coeur d'Alene Tribe held two formal scoping meetings to assist in the development of the IRMP DPEIS. The first scoping meeting was held in Plummer at the Tribal Wellness Center on Tuesday, October 8th, 2002. The second scoping meeting was held in St. Maries at the St. Maries Middle School on October 9th, 2002. The agenda and format were the same at each meeting. The scoping meetings were held in order to:

5. Provide background on the Tribe's Environmental Action Plan (EAP) Project and IRMP process,
6. Request public input on the proposed IRMP management alternatives, and
7. Request public input to identify issues to address in the IRMP Programmatic Environmental Impact Statement (PEIS)

#### *Plummer Scoping Meeting*

Seven people attended the public scoping meeting in Plummer on October 8, 2002. Topics discussed during the Plummer scoping meeting included:

1) Water Quality Guidelines/Standards

- \* Are there Tribal Water Quality Standards? Yes. Awaiting EPA approval
- \* Declining water quality
- \* Sediment loading in St. Joe River
- \* Waste and sewage disposal
- \* Building in inappropriate areas
- \* Riparian losses from development
- \* Mining and the aftermath
- \* Noxious weeds—millfoil in Coeur d'Alene Lake
- \* Condition of Coeur d'Alene Lake better now than when mining and agriculture in full production
- \* Watershed approach to assessing quality of water

2) Government mandates and restrictions may also have implications on water quality and quantity  
(St. Maries/Wallace)

- \* Comparison of urban and suburban use (example of having to stop using Rochet Creek surface water for drinking water—lower water quality in temporary wells).
- \* Implications of restrictions and regulation stemming from IRMP, what restrictions will this include?

3) Recommend multiple use management—consideration of all values in the Land Management Areas

4) Trade-offs between air quality and sediment into streams and lake from burning in agricultural lands

- \* Sedimentation in Benewah County

5) Wetlands loss of function and value

- \* Wildlife habitat losses
- \* Indications of problems

6) Is information available to compare existing condition with past conditions?

7) What is the impact of land acquisition on the Integrated Resource Management Plan?

- \* More problems might arise from addressing this too specifically

8) Land use around lake and acquisition

9) Make sure there are clear distinctions between Conservation Management Recommendation and Forest Management Recommendation,

- \* The areas marked “Forest” in MR6 in Alternative B have a lot of agricultural lands in them, too

- 10) Noise levels have a noise pollution potential
  - \* Need noise level standards
- 11) Tribal and non-Tribal compatibility—need involvement of all entities
- 12) Include township and range section maps as references so that people can find their land easily,
  - \* Use black & white designs on maps instead of color for ease of copying.
- 13) Development in Alternative B should be what is shown in Alternative D—it's more realistic,
- 14) Need to make a clear distinction between developing the Programmatic Environmental Impact Statement document and the Integrated Resource Management Plan document
  - \* Currently working on the PEIS document in conformance to the National Environmental Policy Act (NEPA),
  - \* Once the NEPA decision-making process is completed, then the IRMP document will be written and published,
- 15) Make sure to contact all overlapping jurisdictions and compare their land use plans with the IRMP in the PEIS document—try to obtain their comments
- 16) Point and non point source water pollution and implications on watershed boundary designations—recommend treating upstream and downstream waters differently
- 17) Different resources will have different boundaries such as airsheds or critical habitat designations—make sure to include these in the PEIS
- 18) Consider social and economic impacts of the PEIS on resource dependant communities—need to address both categories
- 19) FERC relicense in Post Falls and how it will affect Coeur d'Alene Lake

### ***St. Maries Scoping Meeting***

Six people attended the public scoping meeting in St. Maries on October 9, 2002. Topics discussed during the St. Maries scoping meeting included:

- 1) Existence of environmental baseline data—important to planning
- 2) Carrying capacity evaluation/density suitable based on environmental concerns
- 3) Integration of existing comprehensive plans into the process for coordination and collaboration
- 4) How will PEIS approach private property rights?
- 5) Involvement in IRMP Community Advisory Committee—how do we become involved? Open to everyone in the public that wishes to attend meetings
- 6) Restoration of riparian areas is a high priority

- 7) Reintroduction of fire back into the ecosystem (Forest Health)
- 8) Re-establishment of historic or native species composition in forest uplands and riparian areas
- 9) Will the IRMP Record Of Decision (ROD) impose restrictions or regulations?
  - \* No regulations but it will discuss the need to review and update the Integrated Resource Management Plan if new information or new conditions warrant
  - \* There is no direction from Tribal Council to develop regulations in the IRMP or after it is approved
- 11) Role of BIA in the process is that of a trustee of Tribal resources; therefore, BIA is the agency that the Tribe works with most closely to comply with the National Environmental Policy Act (NEPA) process
- 12) Will other Reservations do IRMPs? There is no mandate to do IRMPs so it is up to individual tribes to choose whether or not to complete one
- 13) Can information regarding land use, cultural areas, and critical habitat be mapped to show how they overlap or are in conflict with each other when making recommendations for suitability for differing land use?
- 14) State regulation of riparian zones create a “lockout” causing potential health problems (active management appropriate)
- 15) Native plant and wildlife species vs. non-native species
- 16) Cooperative strategies for conservation and environmental restoration

#### **C.4.0: Agency Coordination and Consultations**

This Section describes the Tribe’s coordination with key agencies on the development of the IRMP DPEIS.

##### **C.4.1 US DOI Bureau of Indian Affairs**

As one of the agencies that has provided funding to develop the IRMP DPEIS, and as the main federal trustee, the Tribe has maintained coordination with the Bureau of Indian Affairs on a quarterly and sometimes monthly basis in regards to the IRMP process. The Tribe received informal comments on an early preliminary IRMP DPEIS on June 26, 2003 from the Portland Area BIA office.

##### **C.4.2 US Environmental Protection Agency**

As one of the agencies that has provided funding to develop the IRMP DPEIS and as an agency that is responsible for ensuring that Environmental Impact Statements meet requirements, the Tribe

coordinates with EPA on a quarterly basis. A representative from the US EPA attended the IRMP scoping meeting in Plummer, Idaho on October 8th, 2003. In addition, EPA provided informal comments on the July 2003 preliminary IRMP DPEIS,

#### C.4.3 US Fish and Wildlife Service

The USFWS has established a system of informal and formal consultation procedures. In accordance with Section 7 of the ESA, the Tribe requested a list of threatened and endangered species from the USFWS on March 4th, 2003. The Tribe maintained email and phone contact with USFWS during the development of the preliminary IRMP DPEIS to keep the agency informed of the Tribe's progress. The Tribe sent the USFWS a copy of the preliminary IRMP DPEIS during the time that the IRMP Community Advisory Committee reviewed the document. USFWS provided the Tribe with informal comments on the July 2003 preliminary IRMP DPEIS.

#### C.4.4 US Army Corps of Engineers

The Tribe has the US Army Corps of Engineers on the IRMP Community Advisory Committee mailing list.

#### C.4.5 State Historic Preservation Office

The Tribe has the State Historic Preservation Office (SHPO) on the IRMP Community Advisory Committee mailing list. SHPO provided the Tribe informal comments on the July 2003 preliminary IRMP DPEIS.





## **Appendix D**

### **Applicable Laws and Minimum Management Requirements**

This chapter describes in greater detail the various Federal and Tribal laws and policies listed in Chapter 1 that the Tribe will comply with in the development of the IRMP and for ground disturbing projects where applicable.

#### **D.0 Federal Laws and Regulations**

##### ***Archaeological Resources Protection Act (ARPA)***

This Act supplements the provisions of the 1906 Antiquities Act. The law makes it illegal to excavate or remove from Federal or Indian lands any archeological resources without a permit from the land manager. Permits may be issued only to educational or scientific institutions, and only if the resulting activities will increase knowledge about archeological resources. This IRMP will be consistent with the ARPA.

##### ***Comprehensive Environmental Response, Compensation and Liability Act (CERCLA or Superfund)***

The primary objective of the Superfund program is the cleanup of the worst abandoned hazardous waste sites in the country. Owners or operators of an inactive and/or uncontrolled hazardous waste site must notify the appropriate State official and convey information to them as to the nature of the site. States compile the information and submit it to the Environmental Protection Agency (EPA). The most serious sites will be placed on the National Priorities List (NPL). The purpose/use of the fund is to aid in the identification, assessment, and ultimate cleanup of abandoned hazardous waste sites when those responsible no longer exist, are unidentifiable, or lack the necessary funds for the cleanup.

##### ***Clean Air Act (CAA)***

The purpose of this Act are to “protect and enhance the quality of the Nation’s air resources so as to promote the public health and welfare and the productive capacity of its population; to initiate and accelerate a national research and development program to achieve the prevention and control of air pollution; to provide technical and financial assistance to State and local governments for aid in the development and execution of air pollution control programs; and to encourage and assist the development and operation of regional air pollution control programs.” The Tribe will contact the appropriate regulatory agency to request a permit when there is a point source dis-

charged into the air.

### ***Federal Water Pollution Control Act (Clean Water Act—CWA)***

The Clean Water Act strives to “restore and maintain the chemical, physical and biological integrity of the Nation’s water.” To achieve this objective the Act sets forth the goals eliminating and prohibiting the discharge of toxic pollutants into navigable waters of the United States. The basic means to achieving the goals of the Act is through a system of water quality standards, discharge limitations, and permits. The Act authorizes EPA to require owners and operators of point source discharges to monitor, sample and maintain effluent records.

If the water quality of a water body is potentially affected by a proposed action (i.e., construction activities that will obstruct, alter, or improve any navigable water or if discharge, dredge, or fill material is within the waters of the U.S. or adjacent to wetlands), a National Pollutant Discharge Elimination System (NPDES) permit (Section 402) may be required). If a project may result in the placement of material into waters, wetlands and riparian areas of the U.S., a Corps Engineers Dredge and Fill Permit (Section 404) may be required. A 401 certification must be obtained prior to being issued a NPDES and 404 permit.

### ***Endangered Species Act (ESA)***

It is the purpose of this Act to provide protection for animal and plant species that are currently in danger of extinction (endangered) and those that may become so in the foreseeable future (threatened). The Act allows protection of the listed species’ critical habitat (the geographic area occupied by or essential to the species). The U.S. Fish and Wildlife Service and National Marine Fisheries Service share authority to list endangered species.

### ***Federal Emergency Management Act (FEMA)***

The Federal Emergency Management Administration administers FEMA, and is mandated to act with care to assure that, in carrying out its responsibilities, including disaster planning response and recovery and hazard mitigation and flood insurance, it does so in a manner consistent with the national environmental policies. Care shall be taken to assure, consistent with other considerations of national policy, that all practical means and measures are used to protect, restore, and enhance the quality of the environment, to avoid or minimize adverse environmental consequences. FEMA should be contacted as early as possible in the planning process for guidance and scope when any structure or activity that may adversely affect the flood regime of a stream within a flood zone is taking place.

### ***Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)***

The Federal Insecticide, Fungicide, and Rodenticide Act, is the basic law regulating the pesticides in the U.S. The Act regulates the marketing as well as the requirements for their use. EPA is responsible for regulation including the amount of residue of a pesticide which can remain on raw farm products.

FIFRA requires all pesticides to be classified as restricted or general use. Only certified applicators or applicators under the direct supervision of a certified applicator may apply restricted use pesticides. Each state provides an individual certification program conducted by the State's Department of Agriculture or in some cases (such as on Indian Reservations) EPA may administer the program. County Agricultural Commission employees (e.g. Agriculture Specialists or Inspectors) commonly issue restricted materials permits and monitor compliance.

### ***Forest and Rangeland Renewable Resources Research Act***

The purpose of this Act is to serve the national interest by the establishment of a renewable resource program to provide a comprehensive assessment of present and anticipated use, demand for, and supply of renewable resources from the Nation's public and private forests and rangelands, through analysis of environmental and economic impacts, coordination of multiple use and sustained yield opportunities.

### ***Hazardous Materials Transportation Act***

The purpose of this Act is to regulate the transportation of all hazardous materials, including chemical and nuclear.

### ***Indian Agricultural Resource Management Act***

This Act was implemented to aid in the development and management of Reservation lands for agricultural development where it is in the best interest of the Tribal constituents and in the best interests of renewable resources, recreational opportunities, or urban needs.

### ***Indian Land Consolidation Act***

This Act instructs and designates consolidation of reservation lands in order to retain contiguous elements of traditional tribal lands or reservations.

### ***Indian Mineral Leasing Act***

This Act instructs the process for mineral leasing on reservation lands.

### ***Indian Religious Freedom Act***

This Act creates a policy for the government to protect and preserve American Indians' inherent right of freedom to believe, express, and exercise their traditional religions. It allows them access to sites, use and possession of sacred objects, and the freedom to worship through ceremonial and traditional rights.

### ***Land Conservation and Restoration Act***

This Act would implement programs that enable individuals to recognize, analyze, and resolve problems dealing with renewable resources and the restoration of those resources. This Act pertains to forestlands, rangelands, outdoor recreation opportunities, and urban areas.

### ***Migratory Bird Treaty Act***

This Act protects known migratory bird species including their nests and eggs from intentional harm or harassment. It mandates governments to assess impacts to migratory birds from any ground disturbing action.

### ***National Environmental Policy Act (NEPA)***

The Act establishes a national policy for the environment, to provide for the establishment of a Council on Environmental Quality. The purposes of this Act are: to declare a national policy which will encourage productive and enjoyable harmony between man and his environment; to promote efforts which will prevent or eliminate damage to the environment and biosphere and stimulate the health and welfare of man; to enrich the understanding of the ecological systems and natural resources important to the Nation. It requires environmental analysis and public disclosure of federal actions, including Environmental Impact Statements.

### ***National Forest Management Act***

This Act is an amendment to the Forest and Rangeland Renewable Resource Planning Act, which clarifies utilization of mills, wood wastes, reforestation, planning and transportation.

### ***National Historic Preservation Act (NHPA)***

This Act establishes a Federal Policy for the protection of historic sites and values in cooperation with other nations, states, tribes and local governments. It establishes a program of grants-in-aid to states and tribes for historic preservation activities. The State Historic Preservation Officer (SHPO) is the individual responsible for administering programs in the states. Many tribes also have Tribal Historic Preservation programs.

### ***National Pollutant Discharge Elimination System***

This an amendment to the Clean Water Act, which designates and controls discharge of substances into any waters or water bodies in the United States.

### ***National Indian Forest Resources Management Act***

The purpose of this Act is to allow the Secretary of the Interior to take part in the management of Indian forest land, with the participation of the lands' beneficial owners in a manner consistent with the Secretary's trust responsibility and with the objectives of the beneficial owners.

### ***Native American Graves Protection and Repatriation Act***

This Act pertains to Native American human remains and objects. The ownership or control of Native American cultural items which are excavated or discovered on Federal or tribal lands shall be given priority for associated funerary objects, in the lineal descendants of the Native Americans.

### ***Pacific Northwest Electric Power Planning and Conservation Act (aka Northwest Power Act )***

This Act addresses the impact on fish and wildlife of hydroelectric dams on the Columbia River. The Act establishes the Pacific Northwest Electric Power and Conservation Planning Council. It directs the Council to adopt a regional energy conservation and electric power plan and a program to protect, mitigate and enhance the fish and wildlife, including related spawning grounds and habitat, of the Columbia River and its tributaries, particularly anadromous fish.

### ***Resource Conservation and Recovery Act (RCRA)***

This is the basic law governing the disposal of solid waste and the regulation of landfills. It outlaws open dumps and requires the separate disposal of hazardous wastes.

### ***Safe Drinking Water Act***

The Safe Drinking Water Act provides for the safety of drinking water supplies throughout the United States by establishing National standards. EPA, states and tribes are responsible for enforcing the National Standards.

### ***Soil and Water Resource Conservation Act of 1977***

This Act addresses the growing and ongoing demand on soil, water, and related resources, including fish and wildlife habitats. The Act establishes natural resource conservation programs to assist landowners and users in developing sound soil, water and habitat conservation principles to further soil and water conservation. The policy and purpose of this Act is to conduct programs administered by the Federal government that will work toward the conservation of resources and be responsive to the long-term needs of the nation.

### ***Surface Mining and Control Reclamation Act***

In order to provide for the control and prevention of erosion and sediment damages from unreclaimed mined lands, and to promote the conservation and development of soil and water resources the federal government will enter into agreement with landowners, residents, and tenants, to determine land stabilization and conservation treatment.

### ***Toxic Substances and Control Act***

This Act gives EPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States. EPA repeatedly screens these chemicals and can require reporting or testing, or can ban those that may pose an environmental or human-health hazard.

## **D.1: Tribal Law and Policy**

### ***Smoke Management***

Allows the management of smoke hazards from agricultural burning through a Smoke Management Plan, using an application, permitting, and burn prioritization process.

### ***On-Reservation Hunting, Fishing, and Trapping***

Manages fish and wildlife harvest and populations on the Reservation with a permit system for both Tribal and non-Tribal individuals. Includes other provisions such as restricted areas, allowable methods, enforcement, etc.

### ***Off-Reservation Hunting, Fishing, and Trapping***

Describes the right of Tribal members to hunt and fish off-Reservation in the Tribe's aboriginal territory. Specifies the available species, enforcement capabilities of cooperating non-Tribal agencies, required Tribal permitting, prohibitions, and other regulations.

### ***Boating on Tribal Waters***

Regulates boat use on all waters on the Reservation. Requires all boat owners to obtain and display Certificates of Registration. Rules governing boat speed, driver alcohol use, restricted zones, etc., are included to maintain safety and ecology.

### ***Encroachments***

Specifies and regulates allowable uses of submerged lands and waters on the Coeur d'Alene Reservation in order to protect Tribal and public health, safety, water quality and quantity, navigation, fish and wildlife habitat, aquatic life, aesthetic beauty and Tribal values. Establishes a five-member Lake Board and an encroachment permit and fee schedule for various encroachment types (marinas, slip docks, piers, jetties, dikes, utilities, etc.).

### ***Firewood Cutting***

Permit from the Tribe is needed for all firewood cutting on trust lands per Coeur d'Alene Tribal Resolution 263(2003).

### ***Tribal Forest Management Plan***

Plans and guides forests and forestry on trust lands through 2017. Sets goals for forest conditions such as stand density and old growth occurrence. Specifies allowable management techniques. Includes provisions for forest health, reserves, wildlife protection, and water resource protection.

### ***Timber Harvesting on Trust Lands***

Plans and guides timber harvest on trust lands through 2017. As described in 25 CFR section 163.13, the Tribal Logging Operation (TLO) is a Tribal forest enterprise and has the right of first refusal for timber sales on Tribal lands. Actual harvest will vary depending on analyses of alternatives by interdisciplinary teams and decisions by allotment owners and Tribal Council. Timber sales will be prepared to comply with 25 CFR section 163 and 53 Bureau of Indian Affairs manual. Following timber sale preparation, presale marking and presale cruising are performed and a Forest Officer's Report (FOR) is prepared for each proposed timber sale estimated to exceed \$15,000.00.



# Appendix E

## Tribal Forest Plan Standards and Guidelines

This Appendix contains Best Management Practices, Riparian Management Zone, Road Construction, and Snag Retention standards and guidelines.

### Best Management Practices for Trust Forests Coeur d’Alene Reservation

Acknowledgement: These Best Management Practices (BMP’s) are adapted from *Rules Pertaining to the Idaho Forest Practices Act*, Idaho Department of Lands, Boise, Idaho, April 1, 2000 and *Forestry BMP’s for Idaho: Forest Stewardship Guidelines for Water Quality*, University of Idaho Cooperative Extension System, (order copies at <http://www.idahoforests.org/bmp>). References to state law and the Land Board are omitted due to Tribal Sovereignty. Other changes include measures to comply with “*Recommendations on Forest Riparian Buffer Strips for the Protection of Water Quality, Fish and Wildlife Resources on the Coeur d’Alene Reservation*” by Coeur d’Alene Tribe Fish, Water & Wildlife Programs or other resource protection objectives of the Coeur d’Alene Tribe.

#### 1. Timber Harvesting

1.1 Residual Stocking: Reforestation is required if harvesting reduces stocking of acceptable trees below the levels described in Section 3.3.

1.2 Soil Protection: The timber sale contract or timber cutting permit shall specify the logging method and type of equipment suited to protecting soils, based on the slope, landscape, road system, soil properties and silvicultural prescription within a cutting block or groups of cutting blocks within a timber sale.

1.2.1 Ground based skidding shall not be used where or when it would cause rutting, deep soil disturbance, or accelerated erosion. Unless approved by the Interdisciplinary Team for a specific project, crawler tractors shall not skid on slopes exceeding 45% gradient and rubber tired skidders shall not skid on slopes exceeding 25% average gradient.

1.2.2 Cable or aerial yarding shall be used on most sites with slopes exceeding 45%, those on unstable soils and on slopes exceeding 25% that are located between a road and a riparian management zone. Uphill cable yarding is preferred. Where downhill yarding is necessary, reasonable care shall be taken to lift the leading end of the log to minimize downhill movement of slash and soils.

- 1.2.3 In accordance with appropriate silvicultural prescriptions, designate skid trails in advance of cutting to provide permanent stand access. Average spacing between trails should not exceed 100 feet between trails, except at forks and landings. Mechanized harvesters may operate on narrower trail spacing, if soil compaction is limited through methods approved by the department.
- 1.2.4 Operator shall use existing skid trails in preference to new trails, except where existing trails violate BMP's related to gradient, location or spacing.
- 1.2.5 Tractors used for skidding shall be limited to the size appropriate for the job and skid trail width should not exceed 10 feet average width.
- 1.2.6 Limit the grade of newly constructed skid trails to a maximum of 30%.
- 1.3 Landings & Trails: Locate landings, skid trails, and fire trails on stable areas to prevent the risk of material entering streams.
  - 1.3.1 All new or reconstructed landings, skid trails (except at approved crossings) and fire trails shall be located outside the appropriate riparian management zones (buffer strips). Locate fire and skid trails where sidecasting is held to a minimum.
  - 1.3.2 Minimize the size of each landing to that necessary for safe economical operations.
  - 1.3.3 To prevent landslides, fill material used in landing construction shall be free of loose stumps and excessive accumulations of slash. On slopes where sidecasting is necessary, landings shall be stabilized by use of seeding, compaction, riprap, benching, mulching or other suitable means.
- 1.4 Drainage Systems: Provide and maintain a drainage system to control the dispersal of surface water and minimize erosion from each landing, skid trail or fire trail.
  - 1.4.1 Whenever they are subject to erosion, stabilize skid trails and fire trails by water barring, cross draining, outslowing, scarifying, seeding and/or other suitable means. This work shall be kept current prior to fall and spring runoff to prevent erosion.
  - 1.4.2 Reshape landings as needed to facilitate drainage prior to fall and spring runoff. Stabilize all landings by establishing ground cover or by some other means within one year after harvesting is completed.
- 1.5 Treatment of Waste Materials: All debris, overburden, and other waste material associated with harvesting shall be left or placed in such a manner as to prevent their entry by erosion, high water, or other means into streams.
  - 1.5.1 Wherever possible, trees shall be felled, bucked and limbed in such a manner that the tree or any part thereof will fall away from any riparian management zone.

1.5.2 Remove slash and other debris that enters streams only at or near culvert inlets.

1.5.3 Deposit waste material from construction or maintenance of landings and skid and fire trails in geologically stable locations outside of the appropriate (stream protection) *riparian management zone*.

1.6 Stream Protection: Forest practice operations shall protect streambeds and streamside vegetation to leave them in the most natural condition possible to maintain water quality and aquatic habitat. Riparian management zones (RMZ) widths vary depending on stability of adjacent hillslopes, but should always encompass the 100-year floodplain. Until the Department delineates floodplain boundaries, the average widths for each stream class should serve as minimum requirements. Where the Department has delineated floodplain boundaries, do not reduce RMZ widths below the lower range of recommended widths or to the point that continuity of riparian areas is lost.

1.6.1 Ground based skidding in or through streams shall not be permitted. When streams must be crossed, adequate temporary structures to carry stream flow shall be installed. Cross the stream at right angles to its channel if possible. Remove temporary crossing immediately after use and, where applicable, water bar the ends of the skid trails.

1.6.2 Operation of ground-based equipment shall not be allowed within the riparian management zone except at approaches to approved stream crossings.

1.6.3 When cable yarding is necessary across riparian management zones, the department shall require measures to minimize disturbance to stream bank vegetation and channel.

1.6.4 Class I Streams

1.6.4.1 Class I riparian management zones shall range from 100 to 200 feet horizontally on both sides of the active channel. Average width should be 125 feet for streams adjacent to stable hillslopes and 150 feet for streams adjacent to moderate and unstable hillslopes.

1.6.4.2 The no harvest buffer shall consist of the innermost 100 feet for Class I streams, unless emergency needs can be addressed while meeting short term and long term goals for LOD, shade, soil stability, wildlife cover and water filtering. When the riparian management zone extends beyond the no harvest buffer, the department will allow partial over-story removal consistent with the applicable silvicultural prescription. Harvesting within riparian management zones will only take place to promote the desired ecological components, and shall require a site-specific silvicultural prescription approved by the Interdisciplinary Team.

1.6.4.3 No mechanical entry by ground skidding equipment is allowed in the riparian management zone, except on authorized stream crossings. Skidding in or through the stream is prohibited.

1.6.4.4 Timber harvest adjacent to riparian management zones should use directional falling

and other techniques to minimize debris loading into the channel. If logging slash accidentally accumulates in riparian management zones, leave it unpiled. Remove slash only in cases of extremely large deposits that create significant risks for aquatic or wildlife resources.

1.6.4.5 The interdisciplinary team may prescribe the use of fire within the riparian management zone to maintain or restore some plant communities.

1.6.4.6 Unless prescribed by the interdisciplinary team, forest practices shall not cut, slash or remove non-merchantable and sub-merchantable trees from the riparian management zone.

1.6.4.7 Snags in any riparian area will not be cut unless they pose a safety hazard during logging, site preparation or reforestation operations, or to public roads.

1.6.4.8 Road fill material and road building debris shall not be deposited where it may enter the riparian area.

#### 1.6.5 Class II Streams

1.6.5.1 On Class II streams with stable ratings for adjacent hillslopes, riparian management zones shall range from 30 to 70 feet horizontally on both sides of the active channel, with an average width of 50 feet. Those streams with moderate or unstable ratings will have a riparian management zone ranging from 50 to 100 feet with an average width of 75 feet. Distances are measured horizontally from the active channel on both sides.

1.6.5.2 The no harvest buffer shall consist of the innermost 50 feet for Class II streams, unless emergency needs can be addressed while meeting short term and long term goals for LOD, shade, soil stability, wildlife cover and water filtering. When the riparian management zone extends beyond the no harvest buffer, the department will allow partial over-story removal consistent with the applicable silvicultural prescription. Harvesting within riparian management zones will only take place to promote the desired ecological components, and shall require a site-specific silvicultural prescription approved by the Interdisciplinary Team.

1.6.5.3 No mechanical entry by ground skidding equipment is allowed in the riparian management zone, except on authorized stream crossings. Skidding in or through the stream is prohibited.

1.6.5.4 Timber harvest adjacent to riparian management zones should use directional falling and other techniques to minimize debris loading into the channel. If logging slash accidentally accumulates in riparian management zones, it shall be left in place and not piled. Slash should be removed only in cases of extremely large deposits that are judged to create significant risks for aquatic or wildlife resources.

1.6.5.5 The interdisciplinary team may prescribe the use of fire within the riparian management zone to maintain or restore some plant communities.

1.6.5.6 Unless prescribed by the interdisciplinary team, forest practices shall not cut, slash or remove non-merchantable and sub-merchantable trees from the riparian management zone.

1.6.5.7 Snags in any riparian area will not be cut unless they pose a safety hazard during logging, site preparation or reforestation operations, or to public roads.

1.6.5.8 Road fill material and road building debris shall not be deposited where it may enter the stream.

#### 1.6.6 Class III Streams, Springs and Seeps

1.6.6.1 Along streams with stable and moderately stable hillslopes, riparian management zones shall range from 0 to 50 feet wide horizontal distance on both sides of the active channel. Along streams with unstable hillslopes, riparian management zones range from 25 to 75 feet wide, with an average width of 50 feet horizontally on each side of the active channel.

1.6.6.2 Most overstory trees may be removed in Class III riparian management zones with stable or moderately stable hillslopes. Up to 50% of the overstory may be harvested from riparian management zones with unstable hillslopes. Reserve trees from harvest in the immediate vicinity of locally unstable areas. Distribute leave trees along the stream in locations that maximize the resistance to debris flows and floods.

1.6.6.3 Unless prescribed by the interdisciplinary team, forest practices shall not cut, slash or remove non-merchantable and sub-merchantable trees from the riparian management zone.

1.6.6.4 The Interdisciplinary Team may prescribe the use of fire within the riparian management zone to maintain some plant communities.

1.6.6.5 Snags should be retained in riparian management zones, but safety hazards for recreational or commercial forest users may be cut and left on the ground in the riparian area or stream channel.

1.7 Maintenance of Productivity and Related Values: Harvesting practices will be designed to assure the continuous growing and harvesting of forest tree species by suitable economic means and also protect soil air, water, and wildlife resources.

1.7.1 Where major scenic attractions, highways, recreation areas or other high-use areas are located within or traverse forestland, consider scenic values by prompt cleanup and regeneration.

1.7.2 The Interdisciplinary Team shall consider preserving any critical wildlife or aquatic habitat. Timber sale planners shall consult the U.S. Fish and Wildlife Service regarding threat-

ened and endangered species. Wherever practical, preserve fruit, nut, and berry producing trees and shrubs.

1.7.3 Avoid conducting operations along bogs, swamps, wet meadows, springs, seeps, wet draws or other sources where the presence of water is indicated, protect soil and vegetation from disturbance which would cause adverse affects on water quality, quantity and wildlife and aquatic habitat.

1.7.4 Whenever practical, as determined by the Interdisciplinary Team, plan regeneration cuts so that adequate wildlife escape cover is available within one-quarter ( $\frac{1}{4}$ ) mile.

1.7.5 The Interdisciplinary Team shall consult the Tribal Cultural Committee and the Tribal Culture Program\* to establish protection for any known cultural resources. Cultural Resource surveys shall precede timber sales to search for cultural resources not previously identified. Timber sale contracts require that the purchaser suspend operations if cultural sites are found in the operating area. The department may establish no treatment buffers or other protective measures for the cultural resources.

1.7.6 Areas proposed for forest management activities will be reviewed by the Natural Resources Committee and Cultural Affairs Committee to determine whether sites used for gathering food or medicinal plants would be affected. Specific protection or enhancement measures will be developed and implemented as needed.

## ***2. Road Construction, Reconstruction and Maintenance***

2.1 Consult the Coeur d'Alene Tribal Forest Road Management Policy, which provides standards and guidelines for road construction, reconstruction and maintenance.

## ***3. Residual Stocking and Reforestation.***

3.1. Quality of Residual Stocking: On any operation, trees left for future harvest shall be of acceptable species and adequately protected from harvest damage to enhance their survival and growth. This may be accomplished by locating roads and landings and by conducting felling, bucking, skidding, yarding, and decking operations so as to minimize damage to residual trees. Acceptable residual trees should have a minimum live crown ratio of thirty (30%), minimum basal scarring, and should not have dead or broken tops. When stands have a high percentage of unacceptable trees, consider stand replacement rather than intermediate cuttings.

3.2. Sites Unpractical to Plant: Sites unpractical to plant, generally ponderosa pine and drier Douglas-fir habitat types, shall not be harvested below minimum stocking, unless the site is converted to some other land use.

3.3. Stocking: Stocking will be deemed satisfactory immediately following harvest if the follow-

\* This is an update to the Tribe's Forest Management Plan (FMP) because the Tribal Culture Program did not exist when the FMP was developed.



ing number of acceptable trees per acre, for at least one (1) size class, are reasonably well-spaced over the area affected by forest harvesting (NOTE: DBH = Average Diameter (outside of the bark) of a tree four and one half (4.5) feet above uphill ground level):

**Table E.3.3 Minimum Stocking Levels by Average Stand DBH**

<i>Average DBH in inches</i>	<i>Minimum Number of Trees per acre</i>	<i>Average Spacing in feet</i>
2.9 and smaller	170	16 x 16
3.0 and greater	110	20 x 20
5.0 and greater	60	27 x 27
8.0 and greater	35	35 x 35
11.0 and greater	20	47 x 47

3.4. Reforestation: Reforestation is required for stands where harvesting reduces stocking below the levels described in Table 3.3. Planting and/or natural regeneration shall establish at least 200 seedlings per acre within 5 years after planting (or harvest for natural regeneration). Supplemental planting shall continue until the stocking levels meet the minimums in Table 3.3.

3.5. Reforestation Exemptions: Reforestation is not required for:

3.5.1. Land converted to another use. This may include land converted to roads used in a forest practice.

3.5.2. An opening less than two (2) acres in size that is below minimum stocking levels.

3.5.3. On lands exempted under Subsection 3.5 where reforestation is not being planned, some form of grass or planted cover shall be established within one (1) year in order to maintain soil productivity and minimize erosion.

#### ***4. Use of Chemicals and Petroleum Products***

4.1. Purpose. Chemical products can perform important functions in the growing and harvesting of forest tree species. The purpose of these rules is to regulate handling, storage and application of chemicals in such a way that the public health and aquatic and terrestrial habitats will not be endangered by contamination of streams or other bodies of water. The application of pesticides shall comply with the Coeur d'Alene Tribal Code, Chapter 46: Pesticides and the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA).

4.2. Petroleum Products: Petroleum storage containers with capacities of more than two hundred (200) gallons, stationary or mobile, will be located no closer than one (100) feet from any stream, watercourse, lake, or area of open water. Dikes, berms or embankments will be constructed to contain at least one hundred ten percent (110%) of the volume of petroleum products stored within the tanks. Storage areas will be impervious and of adequate capacity to contain spilled petroleum

products. In the event any leakage or spillage enters any stream, watercourse, lake or area of open water, the operator will immediately notify the department.

4.2.1. Transferring Petroleum Products. During fueling operations or petroleum product transfer to other containers, there shall be a person attending such operations at all times. Fueling operations should not take place where, if spillage occurs, the fuel will enter streams, lakes or other areas of open water.

4.2.2. Equipment and containers used for transportation, storage or transfer of petroleum products shall be maintained in a leak proof condition. If the department determines there is evidence of petroleum product leakage or spillage, the use of such equipment shall be suspended until the deficiency has been corrected.

4.2.3. Waste resulting from logging operations, such a crankcase, oil, filters, grease, oil containers, or other non-biodegradable waste shall be removed from the operating area and disposed of properly.

4.3. Certification/Licensing. Certification is required of individuals who apply or distribute restricted use pesticides. Certification is also required of individuals who apply a pesticide as a commercial applicator. The Coeur d'Alene Tribe will recognize Environmental Protection Agency approved pesticide certification. This requirement does not pertain to individuals applying general use pesticides on their own property.

4.4. Maintenance of Equipment:

4.4.1. Equipment used for transportation, storage or application of Chemical products shall be maintained in leak proof condition. All pesticide application equipment will be made available for inspection by the Pesticide Program Manager or a designated agent of the Tribe.

4.4.2. The storage of pesticides and pesticide containers shall conform to Section 46-16.01 of the Tribal Code.

4.5. Mixing:

4.5.1. When water is used in mixing Chemical products:

4.5.1.1. Provide an air gap or reservoir between the water source and the mixing tank.

4.5.1.2. Use uncontaminated tanks, pumps, hoses and screens to handle and transfer mix water for utilization in pesticide operations.

4.5.2. Mixing and landing areas:

4.5.2.1. Mix Chemical products and clean tanks and equipment only where spills will not enter any water source or streams.

4.5.2.2. Landing areas shall be located where spilled Chemical products will not enter any water source or stream.

4.5.2.3. Rinsate and wash water should be recovered and used for make-up water, be applied to the target area, or disposed of according to Tribal, state and federal laws.

4.6. General Pesticide Use Restrictions. Tribal Council may by resolution restrict or prohibit the use of pesticides if necessary to prevent injury to people or the environment. Current restrictions are listed in Chapter 46- Section 11.01 of the Tribal Code.

#### 4.7. Aerial Application.

4.7.1. Aerial application restrictions are listed in Chapter 46- Section 12.01 of the Tribal Code.

4.7.2. With the exception of pesticides approved for aquatic use and applied according to labeled directions, when applying pesticide leave at least one (1) swath width (minimum one hundred (100) feet) untreated on each side of all Class I streams, flowing Class II streams and other areas of open water. When applying pelletized fertilizer, leave a minimum of fifty (50) feet untreated on each side of all Class II streams, flowing Class II streams, and other areas of open water.

4.7.3. Use a bucket or spray device capable of immediate shutoff. Shut off chemical application during turns and over open water.

#### 4.8. Ground Application with Power Equipment.

4.8.1. With exception of pesticides approved for aquatic use and applied according to labeled directions, when applying pesticide, leave at least twenty-five (25) feet untreated on each side of all Class I streams, flowing Class II streams and areas of open water.

4.8.2. When applying fertilizer, leave at least ten (10) feet untreated on each side of all streams and areas of open water.

#### 4.9. Hand Application.

4.9.1. Apply only to specific targets; such as, a stump, burrow, bait, or trap.

4.9.2. Keep Chemical products out of all water sources or streams.

#### 4.10. Limitations on Applications.

4.10.1. Chemical products shall be applied in accordance with all limitations and instructions printed on the product registration labels, supplemental labels, and others established by regulation of Tribal Council.

4.10.2. Do not exceed allowable rates.

4.10.3. Prevent direct entry of Chemical products into any water source or stream.

#### 4.11. Daily Records of Chemical Applications.

4.11.1. When restricted use pesticides are applied on forest land, the operator shall maintain a daily record of spray operations which includes:

4.11.1.1. Date and time of day of application.

4.11.1.2. Name and address of owner of property treated.

4.11.1.3. Purpose of the application (control of vegetation, control of tussock moth, etc).

4.11.1.4. Contractor's name and pilot's name when applied aerially. Contractor's name or applicator's name for ground application.

4.11.1.5. Location of project (section, township, range and county; or other system authorized by Chapter 46- Section 6.01(A)(1)(3) of the Tribal Code).

4.11.1.6. Air temperature (hourly).

4.11.1.7. Wind velocity and direction (hourly).

4.11.1.8. Pesticides used including trade or brand name, EPA product registration number, mixture, application rate, carrier used and total amounts applied.

4.11.2. Whenever fertilizers or soil amendments are applied, the operator shall maintain a daily record of such application as described above in Subsection 4.10.1, but 4.10.1.8 shall include the name of the fertilizer or soil amendment and application rate.

4.11.3. The records required in Subsection 4.10 shall be maintained for three years in compliance with Chapter 46- Section 6.01(D) of the Tribal Code.

4.11.4. All records required in Subsection 4.10 shall be retained for three (3) years.

4.12. Container Disposal. Chemical containers shall be cleaned and removed from the forest and disposed of in a manner approved by the director in accordance with applicable local, state and federal regulations; or removed for reuse in a manner consistent with label directions and applicable regulations of a state or local health department. Open burning of containers is prohibited.

4.13. Spill. Spills shall be reported and appropriate cleanup action taken in accordance with Chapter 46- Section 15.01 of the Tribal Code.

4.13.1. All chemical accidents and spills shall be reported immediately to the Pesticide Program Manager or Natural Resource Department (both at 208-686-1800) as soon as it is safe to do so. If necessary notify emergency services at 911 as soon as possible. Many pesticide labels also have an important emergency telephone number to call in case of spills.

4.13.2. If chemical is spilled, appropriate procedures shall be taken immediately to control the

flow of material being spilled and contain the released material, provided it can be done in a safe manner.

4.13.3. It is the applicator's responsibilities to collect, remove, and dispose of the spilled material in accordance with applicable Tribal and federal rules and regulations and in a manner recommended or approved by the Pesticide Program Manager or Natural Resource Department.

4.14. Misapplication. Whenever Chemical products are applied to the wrong site or pesticides are applied outside of the directions on the product label, it is the responsibility of the applicator to report these misapplications immediately to the director.

## ***5. Slash Management***

5.1. Commercial and Non-commercial Slash. Fuels and debris resulting from any forest practice shall be managed as set forth in the Coeur d'Alene Tribal Fuel Management Plan and Fire Management Plan.

5.2. Slash shall not be burned without a burn plan during the "fire season", normally from May 20 to October 10 of each year. Before May 20 or after October 10, a burn plan is required for broadcast or jackpot burns, and for slash piles.

## ***6. Prescribed Fire***

6.1. Prescribed fire shall be used in accordance with the Coeur d'Alene Tribal Fuel Management Plan and Fire Management Plan.

6.2. A written burn plan for each project on Tribal or allotted forestland must be approved by the Tribal Fire Management Officer and other officers, as required by the Bureau of Indian Affairs.

6.2.1. A copy of each approved burn plan will be forwarded to the Idaho Department of Lands.

6.2.2. The Burn Boss will have a copy of the approved burn plan during burning, and another copy will be on file with the Tribal Forestry.

6.2.3. Changes in burn plan requirements or prescription elements will be documented by the Burn Boss. Changes will be approved by the Prescribed Fire Manager.

6.3. The Burn Boss will notify Tribal Forestry (Dispatch) prior to ignition on any burn unit.

6.4. The Burn Boss will regularly inform Tribal Forestry (Dispatch) of progress and significant events (start time, stop time, wind changes, slop over).

6.5. The Burn Boss or Prescribed Fire Manager will declare slop over fires, as opposed to spot fires.

6.6. All slop over fires will be 100% mopped up.

## Riparian Management Buffers Standards and Guidelines

### 1.1.1 Stream Classification

Riparian buffer recommendations to protect aquatic resources are most commonly based on a stream classification scheme. Several classification schemes were reviewed to determine an appropriate model for the Reservation, including the classifications adopted by the forest practices acts of Idaho, Washington, Oregon, and California; USDA Forest Service; Colville Confederated Tribes; and Pacific Rivers Council Forest Practices Guidelines. The **purpose and need** for adopting a classification scheme on the Coeur d'Alene Reservation is to designate a Riparian Management Zone (RMZ) along streams and wetlands where management prescriptions are made that will minimize the effects of nearby logging and related land disturbance activities.

The proposed classification scheme and definitions for each class is as follows:

- \* Class I—All *perennial streams, i.e. ones that flow continuously throughout the year. Synonymous with permanent stream.*
- \* Class II—All *intermittent or seasonal streams draining basins of 1/2 square mile or more (>320 acres). Intermittent streams are ones that flow only at certain times of the year, such as when the ground water table is high and/or when it receives water from springs or from some surface source such as melting snow. It ceases to flow above the streambed when losses from evaporation or seepage exceed the available streamflow.*
- \* Class III—All *intermittent or seasonal streams draining basins of less than 1/2 square mile (<320 acres)*

The above classification scheme has been simplified so that it can be correctly applied using 7.5 minute quadrangle maps published by the U.S. Geological Survey or by using the Tribal GIS database. A classification that is made using this scheme is accomplished independent of additional resource information (e.g., presence or absence of certain fish or wildlife species). It is our intent to avoid incorrect classifications attributed to the seasonal usage or migration by certain animal species. In addition, current management standards and guidelines should allow for attainment of maximum resource potentials regardless of prior management history. For some forest and agricultural lands, this may require recovery of riparian resources to allow for recolonization by plant and animal species that are important to the Tribe.

### 1.1.2 Overall Objectives for the Riparian Management Zone (RMZ)

Forestland management with regard to the RMZ focuses on four major areas of issues and opportunities: 1) minimizing the potential for cumulative effects; 2) maintaining potential inputs of woody debris; 3) maintaining continuous riparian corridors, with structurally complex plant communities; and 4) rehabilitating degraded riparian resources within individual watersheds to the maximum extent.

In Class I and II streams, the geomorphic objectives of riparian management are to maintain



the physical characteristics of the stream channel and floodplain and to minimize delivery of sediment to the channel. In Class III streams, geomorphic objectives are designed to protect downstream riparian-dependent resources. Management should not change the existing geomorphic structure of stream channels. Maintenance of the following characteristics of stream configuration will help ensure long-term stream stability:

- \* Width and depth
- \* Stream course
- \* Channel gradient
- \* Streambed topography
- \* Streambed and bank materials
- \* Large woody debris

Maintenance of floodplain functions is an extremely important and frequently overlooked component of riparian management. Deposits of sediment during extremely high flood events form floodplains. Riparian vegetation protects these areas, and removal of this vegetation through harvest or road construction makes them vulnerable to massive erosion during subsequent floods. The riparian management zone should include the entire floodplain. Failure to do so will seriously jeopardize riparian management objectives during major floods.

Of all the ecological functions of riparian areas, the process of woody debris loading into channels and floodplains requires the longest time for recovery after harvest. Although young forests begin to deliver woody debris after several decades, large conifer logs cannot be provided by forests less than a century old (Gregory and Ashkenas 1990). Most future riparian functions will be guaranteed if natural abundances and distributions of all sizes of woody debris are maintained in streams, floodplains, and lower hillslopes.

Large woody debris is contributed to the active channel by adjacent riparian forest. Recent studies of streams in old growth and mature forests indicate that 90% of the large wood in the channel originated within 92 feet of the stream margin (McDade *et al.* 1989). For large woody debris management alone, RMZ widths of approximately 100 feet are required to maintain long-term inputs to streams. Additional consideration of floodplain functions and wildlife habitats may require even wider management zones. Woody debris is also important in intermittent and small ephemeral streams (Class II and III), especially where adjacent hillslopes show signs of instability. In these small channels, woody debris in the channel and on the banks stabilizes the stream and creates new habitat within debris flows when they occur.

Where timber harvest is permitted along streams (some Class III streams) large amounts of woody debris may accumulate locally. Logging slash has the potential to retard streamflow, reduce dissolved oxygen concentrations, dam culverts, and initiate landslides and debris flows. At the same time, large pieces of wood add to the physical stability of the channel, and small debris is redistributed and stored by high flows. Appropriate riparian management avoids substantial delivery of wood, and excessive debris loading should not occur. Removal of debris often causes

more erosion than the slash would cause in transport, and frequently damages the stream channel and riparian vegetation. Slash should be removed only in cases of extremely large deposits that are judged to create significant risks for aquatic or wildlife resources.

In agricultural lands where close proximity of forests can limit crop production, a zone of herbaceous plants or grass between the forested riparian habitats and the agricultural crops may be incorporated into the Riparian Management Zone. This grassed zone could minimize both the shading of crops and loss of soil moisture to the forest as well as limit intrusion from riparian deciduous forest species into the agricultural fields.

### ***1.1.3 Riparian Management Zone Boundaries by Stream Class***

For optimal management of riparian resources, riparian management zones should have variable widths that are delineated at ecological boundaries, not at arbitrary distances from the stream (Belt *et al.* 1992; Gregory and Ashkenas 1990). Riparian areas are naturally irregular in shape in response to local topography, geology, groundwater, and plant communities. Consideration of topographic irregularities can protect riparian resources and simplify harvest unit, agricultural field or development layout. For each stream class, the width of riparian management zones will vary depending on the slope stability rating (see Appendix I and Table 1). Locally, boundaries may be less than the recommended average width (see Table 1), but they should not be reduced below the lower range of recommended widths or to the point that continuity of riparian areas is lost. These boundaries are designed to maintain and enhance stream temperatures, ensure local channel stability, retard flow of debris, reduce sediment transport and provide some input of large woody debris and terrestrial food resources where appropriate. *Until such time when the 100-year floodplain can be properly delineated for all Reservation waterbodies, the recommended average widths should serve as minimum requirements.*

\* ***Class I Streams***—Recommended widths of riparian management zones along Class I streams range from 100-200 feet horizontally on both sides of the active channel (Appendix III, Figure 1). Average width should be 125 feet for streams adjacent to stable hillslopes and 150 feet for streams adjacent to moderate and unstable hillslopes. In most forested cases, these distances will encompass the entire 100-year floodplain. On some large stream systems (e.g., mainstem Hangman, Rock and Benewah Creeks), a portion of the floodplain may extend beyond the 200-foot riparian management zone. These large stream systems are generally within stable hillslopes and the average 125-foot buffer should apply. The outer 25 feet of this RMZ could be populated by herbaceous plants or grass. As with all RMZs, the landscape along these large stream systems should be evaluated and managed accordingly.

\* ***Class II Streams***—Riparian management zones on Class II streams will vary depending on the soil stability rating for adjacent hillslopes (see Appendix I). Those streams with stable ratings will have a riparian management zone ranging from 30-70 feet with an average width of 50 feet (Appendix III, Figure 2). Those streams with moderate or unstable ratings will have a riparian management zone ranging from 50-100 feet with an average width of 75 feet. Distances are measured

horizontally from the edge of the active channel on both sides. The 50-foot average width for stable streams would generally apply to agricultural lands, however these landscapes should be evaluated and managed accordingly.

\* ***Class III Streams/Drainages***—Along forested streams with stable and moderately stable hillslopes, riparian management practices are designated for a zone ranging from 25 to 50 feet wide extending horizontally on both sides of the active channel (Appendix III, Figure 3). Along streams with unstable hillslopes, riparian management zones range from 25-75 feet wide, with an average width of 50 feet. Within small acreage drainages in agricultural lands the entire RMZ could be managed as a grassed waterway. A grassed waterway should be engineered for a minimum capacity required to convey the peak runoff expected from a storm of 10-year frequency, 24-hour duration as per Natural Resources Conservation Service Conservation Practice Standard Grassed Waterway Code 412.

#### ***1.1.4 Management within the Riparian Management Zone***

\* ***Timber Harvest***—The levels of allowable timber harvest within the riparian management zones differ by stream class. Allowable timber harvest and other practices in riparian management zones are summarized in Table 1.

No overstory removal is permitted within the innermost portion of the riparian management zones on Class I and II streams. This no harvest buffer will consist of the innermost 100 feet for Class I streams and the innermost 50 feet for Class II streams. When the riparian management zones for these respective stream classes extend beyond the no harvest buffer, partial overstory removal will be allowed in a manner that is consistent with silvicultural prescriptions for the surrounding timber stand. This policy is designed to ensure that management objectives associated with stream temperature and large woody debris recruitment are achieved.

Partial harvest of overstory trees (<50% of the stand in the riparian management zone) is permitted on Class III streams with unstable hillslopes. Trees should not be harvested in the immediate vicinity of locally unstable areas. Trees left within areas of partial harvest should be distributed along the reach in locations that maximize the resistance to debris flows and floods.

Complete removal of overstory trees is permitted in Class III streams with stable or moderately stable hillslopes.

\* ***Salvage***—In general, timber should not be salvaged from any riparian area, except where necessary to accomplish riparian objectives. Given the numerous functions and benefits of riparian vegetation and woody debris, there are few reasons to remove salvaged timber from riparian areas. Treatment of standing trees, snags, and downed logs in riparian areas should be based on meeting objectives for fish and wildlife species.

Trees damaged or killed by blowdown, fire, disease, or insect outbreaks should be retained to maintain biological diversity and to provide future snags and downed woody debris.

Trees that present safety hazards for recreational or commercial forest users may be felled to

eliminate the hazard, but should be left on the ground in the riparian area or in the stream channel.

\* **Blowdown**—Blowdown is not a management failure and downed trees should not be removed from riparian management zones. The zone is designed for the trees to die and fall into the stream channel, and windthrow is the most common source of natural debris loading.

If catastrophic blowdown creates a detrimental situation for riparian-dependent resources (e.g., barriers to fish migration, unplantable conditions, etc.), modification of the debris accumulation can be considered for specific cases. Partial debris removal is preferable to complete salvage. Managers should modify debris accumulations as little as possible to achieve the desired conditions.

\* **Shade Management**—No trees that provide shade to Class I or II stream channels shall be removed. Along all streams where complete or partial harvest is permitted within the riparian management zone, understory vegetation should be maintained to the maximum extent possible for shade to maintain cool water temperature.

\* **Residue Management**—Large woody debris is absolutely crucial to numerous riparian functions over both the short-term (seasons to decades) and long-term (decades to centuries) life of the forest. The policy of no harvest in certain portions of the riparian management zone is designed to guarantee the long-term supply of woody debris to wetlands, streams and floodplains.

Logging slash should not present a problem in wetlands or Class I and II stream channels because no timber harvest is allowed within these riparian management zones. Direct inputs of logging slash should be minimal, and riparian zones will intercept slash from upslope harvest units.

Timber harvest in areas immediately adjacent to streams often adds quantities of slash and large debris to channels; this is most likely to occur along Class III streams. Timber harvest in these areas should use techniques that minimize debris loading into the channel (e.g., directional falling, log suspension, minimal site disturbance).

Managers should be cautious about removing slash from any riparian management zone, stream channel, or wetland. If residue accidentally accumulates in riparian zones, it should be left in place and not piled. No clean up should be prescribed for any stream, lake or wetland under normal conditions.

Broadcast burning normally should not be prescribed to extend into the riparian management zone. The fire line should be located well away from the riparian management zone to avoid disturbance from burning and soil compaction. Prescribed use of fire within the riparian management zone may be recommended to maintain some riparian plant communities. Riparian areas are noted for their resistance to burning, but if fuel loading is a concern at a particular location, slash in the riparian area can be hand piled outside the riparian management zone and burned.

\* **Landing Location**—Landings should always be located outside riparian areas and beyond a point where sidecast could enter the riparian area. Landing sites should be selected based on the least amount of excavation and erosion potential.

\* **Timing of Activities**—Seasonal impacts of logging activities need to be evaluated. Those that may generate excessive fine sediment should be carried out in dry periods of the year so erosion control practices can be completed before the rainy season.

From February 15 through July 1, logging-related sedimentation is more likely to interfere with cutthroat trout spawning, incubation of eggs in the gravels, or emergence of fry. Therefore, construction activities in the stream (e.g., bridges, culverts, rehabilitation structures) normally should be limited to the period between July 1 and February 15. Activities outside the channel but likely to contribute sediment to stream channels should adhere to the same operating season and should use special installations to prevent sediment from reaching the stream.

Bull trout begin spawning in September; therefore, construction activities should be completed before September 1 in reaches they use for spawning.

\* **Herbaceous Plant or Grassed Borders in RMZ's for Class I Streams in Agricultural Lands**—The herbaceous or grass border is a no tillage zone that may be harvested but should not be burned.

\* **The Grassed Waterways of Class III Drainages in Agricultural Lands.** These vegetated drainage bottoms are established to trap sediments during all seasons and should not be tilled, harvested or burned.

Grazing may be allowed in riparian areas, however the high palatability of riparian forage plants along with readily accessible water during the dry season makes riparian areas the focus of cattle grazing and foraging activities during a time when they are particularly susceptible to damage. Stream bank trampling, loss or reductions in the shrub component (particularly willow [*Salix spp*] and red-osier dogwood [*Cornus stolonifera*]), and reductions in regeneration of overstory tree species are undesirable effects of grazing that can be avoided with proper management. The development of off stream channel water sources, placement of trace minerals (salt licks) away from water sources, fencing and grazing rotation are some tools that can be employed to prevent riparian degradation.

## **EXCERPTS FROM TRIBAL FOREST ROAD MANAGEMENT POLICY**

### **2: Project Roadwork Planning**

#### **2.1: Road Maintenance and Reconstruction Plan**

2.1.1 Develop and implement a plan for maintenance of access and main haul routes in the project area to address short term and long term use. I.e., maintenance to include placement of or cleaning of culvert ends, road surface treatment; spot rocking, surface blading for draining and dust abatement. Adequate surfacing to allow wet season use or winter road closure.

2.1.2 Develop a priority list for road reconstruction or realignment, road prism and drainage system design. Chronic problem areas to be reviewed by IDT members, i.e.; landslides, stream crossings and small culverts.

2.1.3 Develop a Road Plan Map with site locations, guidelines and specifications according to IDT findings. Map to be part of the contract. A road plan document will include a Table to list the work to be performed.

2.1.4 Road closure plans will be identified in the planning process, to be implemented at the completion of annual operations, or the road will be adequately waterbarred and rocked if year round access is proposed.

## **2.2: Work Schedule & Communication**

2.2.1 A pre-work conference will be held after the contract is signed, before any work is performed. The contractor, operators, IDT members and the contract administrator will be present.

2.2.2 A work schedule to be developed by contractor and approved by IDT at the PreOperations meeting, to ensure the contractor adequately carries out plans.

2.2.3 Communications: Contractor or operators will communicate with Contract Administrator as to their daily work location and equipment use, for monitoring to take place.

## **2.3: Monitoring**

2.3.1 Monitoring Plan: To insure compliance with the EA a road plan is to be prepared by the Sale Administrator prior to awarding contract. The contract, Road Plan & timeline schedule will be reviewed for compliance with the EA before, during and after road construction and harvest activity.

## **2.4: Work Inspections & Amendments**

2.4.1 AN INSPECTION will be performed periodically by the sale administrator or roads manager to insure the roadwork is relative to the road plan.

AMENDMENT/WORK CHANGE PROPOSAL: Practices may be proposed that are in-lieu of specific mitigation measures, but these practices must provide equal or greater protection than the mitigation measures. All in-lieu practices must be approved by the IDT. The contract Administrator is responsible for notifying the IDT. Contractors and operators are responsible to the Contract Officer. (Table 4 was actually an illustration at the end of the Road Mgt. Policy, that has not been included in this version)

## **2.5: Road Surface Stabilization & Rocking**

2.5.1 High use PRIMARY roads expected to be used during the winter season shall receive rock surfacing except in heavy rock areas. High traffic roads in critical watershed areas, shall receive a surface coat of gravel to prevent sediment erosion into priority watersheds and sensitive fish habitat.



2.5.2 Most SECONDARY roads would receive no rock surfacing, with poorly drained or weak soil areas receiving spot rocking. Roads with a soil surface shall be closed during the wet season or gated if logging operations are completed in sensitive priority watershed areas.

2.5.3 Road grades: Surface stabilization should be considered for all grades in excess of 14% and adverse grades in excess of 10%. Spot rocking and gravel surfacing to protect soils from saturation.

## **2.6: Seasonal Standards & Guidelines: Wildlife**

Consultation with the Tribal wildlife biologist is recommended for any road construction activity and proposed amendments.

## **2.7: Seasonal Standards & Guidelines: Watershed**

2.7.1 Hauling and skidding operations shall stop when surface rutting or excessive mud is produced and causes road damage, or when vehicles require traction devices.

2.7.2 Operating season limitations during significantly wet conditions will be imposed. Impacts to water quality, roads, landings, and soils will be mitigated or deferred. IDT review and contract administration will monitor conditions.

2.7.3 Daily installation of water bars and erosion control measures during the winter period will be required. At all other times, erosion control measures shall be installed when there is a chance of rainfall in excess of 1/2".

2.7.4 Upon completion of seasonal operations, the road surface shall be crowned, outsloped, insloped, or water-barred. Remove berms from the outside edge where runoff is channeled.

2.7.5 Timing of stream crossing installation: Work shall be performed as quickly as possible during the dry period of summer, when streamflows are at a minimum and there will be minimal soil disturbance and risk of sedimentation.

2.7.6 All road construction activities, including the installation of stream crossings and erosion control work, shall be completed before the onset of the rainy period. Likewise, all temporary stream crossings shall be removed and all erosion control measures installed before the winter begins.

## **2.8: Watershed Protection**

2.8.1 Road maintenance guidelines shall give priority to sensitive fisheries habitat and domestic use watersheds. Watershed protection shall be planned to include special mitigation developed by the IDT or Total Maximum Daily Load implementation plans.

2.8.2 Maintain erosion, control features through periodic inspection and maintenance, includ-

ing cleaning dips and crossdrains, repairing ditches, marking culvert inlets to aid in location, and clearing debris from culverts.

2.8.3 Avoid using roads during wet periods if such use would likely damage the road drainage features. Preventative maintenance can reduce the occurrence of culvert plugging. In recently logged areas, floatable debris should be cleaned from drainage ditches that direct water to culverts. Hand, shovel and chainsaw work are usually all that culvert maintenance requires. Delays in cleaning a blocked culvert or ditch can result in a damaged road which requires costly reconstruction.

2.8.4 Storm patrolling culverts with shovel and pick should occur by all crew/NR employees during significant storms. Damage will be reported and mapped for appropriate measures to be identified and implemented.

## **2.9: Quarry Management**

2.9.1 Quarry drainage: At the completion of annual operations, quarry sites will be drained to minimize erosion, road drainage and deposition of sediment into watercourses. Spoils will be seeded, mulched and fertilized to revegetate them and keep dust to a minimum, especially where dust could reach streams. Locate spoils in low, or flat areas or utilize berms to prevent erosion.

2.9.2 Minimize sediment production from borrow pits and gravel sources through proper location, development and reclamation. Unstable fills will be excavated to stable locations. Adjacent plantations, etc. will not be impacted beyond agreed-upon quarry boundaries.

2.9.3 Aggregates: Where rock is to be placed on roads for surface stabilization use of shale type rock should be given a low priority. Where the use of alternative rock type appears costly, the proposed source of the local rock should be examined to determine if the rock source contains asbestos. Asbestos-bearing rocks should not be used for road surfacing.

## **3: Road Maintenance**

### **3.1: Maintenance / Reconstruction Plan**

3.2: **Road maintenance** includes project maintenance and reconstruction plans, and seasonal maintenance (storm patrol and dust abatement). Maintenance plans shall be used for each permanent road to insure that required maintenance is performed in order to protect environmental resources, and provide adequate transportation to those using the road. Maintenance plans shall include, but not be limited to:

### **3.3: Maintain Culverts & Ditches**

3.3.1 Clean culverts: open all blocked or partially blocked culvert inlets.

3.3.2 Clean ditches: Clear inlet and outlet ditches of all debris—after roadside brushing; after grading and rocking.

### **3.4: Reconstruct Culverts & Structures**

3.4.1 Repair retaining structures such as head walls, cribbing, abutments, etc.

3.4.2 Remove faulty culverts that are not working because of poor installation and reset them properly.

3.4.3 Replace damaged culverts that are not working because of damage or collapse and replace with new ones. Install additional culverts where needed.

### **3.5: Maintain & Reconstruct Roadway**

3.5.1 Grade surface: Eliminate ruts, built up shoulder, and in general, reshape the road to conform to the standards for the maintenance level and use of road.

3.5.2 Repair damage to fill slopes using adequate compaction and consideration for stability and slope steepness. outslope roads where feasible.

3.5.3 Remove slides and rock, while minimizing further slope undercutting and sidecast of material. Utilize designated disposal sites and erosion control. consult with IDT members for slides near streams, where significant portions of the slope is involved and/or where sediment delivery to streams is likely to impact water quality and fish habitat.

3.5.4 Add material where necessary to fill holes in the roadbed or to compensate for losses due to wear or erosion. Determine causes of erosion and mitigate.

3.5.5 Maintain dips to assure their performance. Install water bars where erosion is not controlled by designed dips.

### **3.6: Roadside Brush**

3.6.1 Remove all vegetative matter within the roadway which impedes vehicle traffic or interferes with road maintenance operations.

3.6.2 Designate sites for disposal or burn bays, avoid mixing woody debris into fill materials of the road prism. Place debris, waste material in a location to avoid entry into streams.

### **3.7: Surface Blading**

3.7.1 Surface blading is keeping a native or aggregate roadbed in a condition to provide proper drainage. This includes maintaining the crown, inslope or outslope of surface, shoulder; drainage dips; turnouts; road intersections. Gravel and dirt roads require adequate drainage to remain serviceable. All permanent roads should maintain a minimum of 2 to 5 percent slope to prevent water saturation of the subgrade. All roads should be outsloped to reduce the need for culvert maintenance or repair.

#### **3.7.2 Road grading precautions:**

3.7.2.1 Grade road surfaces only as often as necessary to maintain a stable surface and to retain the original surface drainage. During logging operations, early signs of problems are standing water or tire ruts. Serious damage to road surfaces starts with excess water.

3.7.2.2 Avoid cutting the toe of slopes when grading road or pulling ditches.

3.7.2.3 Haul all excess material to safe disposal sites and stabilize sites to prevent erosion. Avoid locations where erosion will carry materials into a stream.

3.7.2.4 Spot blade only those areas needing surface repair by smoothing surface ruts and pot-holes. Avoid grading sections of road that don't need it. This would create a source of sediment from newly disturbed surface.

3.7.2.5 If grading produces excess material, feather it out or haul it away. Never sidecast material into streams. Do not leave a berm that channels water down the road unless it is routed into an effective vegetation filter.

### **3.8: Ditch Cleaning**

3.8.1 All slough material or other debris which might obstruct water flow in roadside ditches shall be removed. Material removed from the ditch, if suitable, may be blended into existing native road surface or shoulder in conjunction with surface blading. Contaminated soils shall be removed, and hauled to a disposal site.

### **3.9: Slide and Slump Repair**

3.9.1 Slide material, including soil, rock and vegetative matter which encroaches onto the roadway, shall be removed. The slope which generated the slide material shall be reshaped during the removal of the slide. Slide material deposited on the fillslope and below the roadway will not be removed unless needed for slope stability. Try not to disturb the road surface or base.

3.9.2 When filling slumps or washouts, material shall be removed from borrow pits or hauled in, placed in layers, and compacted in 6 to 12 inch lifts, by equipment designed to perform the work. Damaged aggregate base, aggregate surfacing, and pavement shall be repaired or

replaced. The repaired slump area shall conform to the existing cross section, to maintain drainage and slope stability.

3.9.3 Drainage of water shall be designed to minimize wetting of unstable slopes, to minimize erosion.

#### ***4: Road Drainage***

##### **4.1: Drainage Structures**

This work consists of maintaining drainage structures and related items such as inlet and outlet channels, riprap and drop inlets.

4.1.1 Drainage structures and related items shall be cleared of all foreign material which has been deposited above the flowline and all vegetative growth which interferes with the flow pattern. Material removed that cannot be incorporated into maintenance work shall be hauled to a designated disposal site.

4.1.2 If outlet or inlet riprap was installed by contractor as a construction item or existed prior to Purchaser's haul, it shall be maintained in good condition including the replacement of riprap if necessary to previous line or grade.

4.1.3 Rolling dips shall be installed on all permanent roads with rock surface to reduce and displace surface runoff rates. This is also to be included into the maintenance plan.

##### **4.2: Waterbars**

This work consists of installing or removing waterbars in the roadbed.

4.2.1 Waterbars shall be installed on roads designated on the Road Maintenance Plan in accordance with locations flagged on the ground. All excavated materials shall be used in the installation of the waterbar.

4.2.2 Waterbars shall be removed on roads designated on the RMP for a smooth travel way by blading materials into the adjacent depression. The fill material shall be compacted by the equipment performing the work.

4.2.3 Waterbars may be required to be installed between storms or seasons of use and then removed when hauling is resumed.

##### **4.3: Roadway Drainage & Grading**

Drainage from road surface: Vary road grades to reduce concentrated flow in road drainage ditches, culverts, and on fill slopes and road surfaces. Well-designed roads with changing road grades, adequate ditches, and crossdrain culverts are important for controlling drainage and ensuring water quality.

- 4.3.1 Provide adequate drainage from the surface of all permanent and temporary roads by using outsloped or crowned roads, drain dips, or insloped roads with ditches and crossdrains.
- 4.3.2 Space road drainage features so peak drainage flow on the road surface or in ditches will not exceed the capacity of the individual drainage facilities.
- 4.3.3 Outsloped roads provide a means of dispersing water in a low-energy flow from the road surface. Outsloped roads are appropriate when fill slopes are stable, drainage will not flow directly into stream channels and transportation safety considerations can be met. A smooth surface is the key to an effective outsloped road. Smoothing and outsloping should be kept current, so water can drain across without creating channels in the road surface.
- 4.3.4 For insloped roads, plan ditch gradients steep enough, generally greater than 2%, but less than 8%, to prevent sediment deposition and ditch erosion. Higher gradients may be suitable for more stable soils; use the lower gradient for less stable soils.
- 4.3.5 Properly constructed drain dips (rolling dips) can be an economical method of channeling surface flow off the road. Construct drain dips deep enough into the subgrade so that traffic will not obliterate them. A rolling drain dip is a portion of road sloped to carry water from the inside edge to the outside onto natural ground. The dip cross grade should be at least 1% greater than the road grade.

#### **4.4: Roadway Drainage Design**

- 4.4.1 Prevent downslope movement of sediment by using sediment catch basins, drop inlets, changes in road grade, or recessed cut slopes. Drop inlets installed at the head of a ditch relief culvert slow the flow of water, help settle-out sediment, and protect the culvert from plugging. Rock armored inlets prevent water from eroding and undercutting the culvert and flowing under the road. Never allow a ditch to drain into a stream. Drain road ditches into a vegetated area far enough from the stream that there is no chance of ditch sediment reaching the channel.
- 4.4.2 Ditch relief culverts prevent water from crossing the road and softening the road bed, and they should release water onto a stable area. Where possible, install ditch relief culverts on the natural slope, at the gradient of the original ground slope; otherwise armor outlets with rock or anchor downspouts to carry water safely across the fill slope. Insure proper slope of at least five inches in every ten feet. Culvert bedding material should be free of rock or debris that might puncture pipe or carry water around the culvert. Cover with soil, avoiding puncture from large rocks. Compact soil at least halfway up the side to prevent water from seeping around the culvert. Rule of thumb for covering culverts: minimum of one foot or one-third the culvert diameter, whichever is greater.
- 4.4.3 Skew ditch relief culverts 20 to 30 degrees toward the inflow from the ditch to improve inlet efficiency and enhance flow. Protect upstream end of crossdrain culverts from plugging. Culvert grade should be at least 2% more than ditch grade.



4.4.4 Provide energy dissipaters (rock piles, logs) where necessary at the downstream end of ditch relief culverts, water bars, dips and other structures to reduce the erosion energy of the emerging water.

4.4.5 Route road drainage through Riparian Protection Zone, filtration fields, or other sediment settling structures. Install road drainage features (slash windrow) above stream crossings to route discharge into filtration zones before entering a stream.

#### **4.5: Culverts & Associated Structures**

4.5.1 Any permanent road crossing live or intermittent streams will require a permanent culvert or rocky ford of a size capable of handling the projected 50 year runoff. Generally the diameter of culverts will not be less than 18 inches. The optimum culvert size recommended 36 inches because they are most likely not to plug with debris and require less maintenance.

4.5.2 Permanent culverts should have the same alignment as the stream and should not restrict fish movement. Where this is not possible, down spouts and energy dissipation devices will be installed.

4.5.3 Culvert length should be no longer than required to accommodate the roadbed plus a 1/2:1 fill sideslope from the roadbed to the culvert bottom. Culvert should not discharge on fill slopes, without spill basins installed.

#### **4.6: Stream Crossing Design**

4.6.1 Design stream crossings for adequate passage of fish, minimum impact on water quality and to handle peak runoff and flood waters.

4.6.2 Cross streams at right angles to main channel if practical. Alignment is critical for the culvert to function properly. Culverts set at an angle to the channel can cause bank erosion. Skewed culverts can develop debris problems.

4.6.3 Adjust the road grade to reduce the concentration of water carried by drainage ditches to stream crossings.

4.6.4 Avoid unimproved stream crossings. When a culvert or bridge is not feasible, locate fords on a stable, rocky portion of the stream channel. Consider railroad flatcars for a low cost alternative to conventional bridges.

#### **4.7: Installation of Stream Crossings**

4.7.1 Minimize stream channel disturbances and related sediment problems during construction of road and installation of stream crossing structures.

4.7.2 Time construction activities to protect fisheries and water quality. Construction of stream

crossings has the greatest potential to cause immediate sediment pollution. Complete the work as fast as possible during a time of year when the least damage can occur.

4.7.3 Remove stockpiled materials, that are not reclaimed into the construction of the project, from high water zones.

4.7.4 When culverts are used to cross small streams, install them to conform to the natural stream bed and slope on all perennial streams. Place culverts slightly below normal stream grade to avoid washout; water should drop slightly as it enters the culvert.-Do not alter stream channels upstream from culverts, unless necessary to protect fill or to prevent culvert blockage.

4.7.5 Before the culvert is placed, the culvert bed must be graded to the appropriate slope to conform with the natural stream bed. The bed shall be either rock-free soil or gravel. Bedding should provide an even distribution of support under the full length of the pipe.

4.7.6 The culvert foundation and trench walls must be free of logs, stumps, limbs or rocks that could damage the pipe or allow water seepage. Start the backfill over one end of the culvert, then cover the other end. Once the ends are secure by backfill, cover the center. Pour backfill material over the top of the pipe. This allows finer soil particles to flow around and under the culvert.

4.7.7 Compact the backfill material. Base and sidewall fill material should be composed of compacted finer soil particles. Tamping fill material after every lift of 8" to 12" inches to the top of the culvert reduces the risk of water seepage into the fill.

4.7.8 Use 1 foot minimum cover for culverts 18 to 36 inches in diameter, and a cover of one-third diameter for larger culverts.

4.7.9 Both inlet and outlet of culvert should be armored. Rocks, logs or grass seeding can be used for erosion protection. When a new culvert is opened to water watch for need of more armor materials.

4.7.10 Road approaches to the new crossing are the next phase. Layers of fill are pushed into place and compacted in layers to build up and maintain road grade. A final precaution against sediment entering streams, should be a windrow of slash constructed around the culvert outlet.

#### 4.8: **Stream Fords**

4.8.1 Fords of live streams are typically composed of streambed gravels, fill, or concrete structures built in contact with the streambed so that vehicles can cross the channel. A stable, rocky portion of the channel should be used.

4.8.2 On small, poorly incised, ephemeral or intermittent streams a ford may be needed if there is insufficient channel depth to install a culvert. A rock lined rolling dip with a rock apron

face may be a desirable alternative to permanent culverts on these small watercourses.

4.8.3 Fords on small streams shall be rock armored to prevent erosion of the road surface and fill during periods of runoff. The fill face on the downstream side of the fill shall be protected with rock armor.

4.8.4 No unimproved fords shall be constructed, if they consist of a stream channel that has been filled with a substantial quantity of soil and left unprotected by armor or surfacing. This type of ford is detrimental to water quality.

#### **4.9: Bridges**

4.9.1 Adequate engineering design is required for bridges used for vehicle traffic.

4.9.2 Installation shall minimize or eliminate the use of equipment in the stream. A low impact equipment crossing (ford) may be needed in the immediate vicinity of the crossing to prepare both abutments and approaches for placement of the bridge. Construction activities shall result in only minimal disturbance to, and no sidecasting into, the stream channel.

4.9.3 Permanent bridges may be secured to the banks by using pilings driven at least 10 feet into the natural ground, or by using a cast or precast concrete abutment that is pinned and grouted to the bedrock or is cabled to deadmen buried behind the abutment.

4.9.4 Temporary bridges may also need to be set on or secured to abutments such as logs or precast concrete slabs.

4.9.5 Each abutment shall be leveled and secured far enough into the bank so that slumping or bank failure will not occur. Abutments and piers shall be parallel to the stream channel and set back from the channel to prevent any narrowing of the streambed and banks.

4.9.6 The bridge crossing shall be at right angles to the channel, but does not have to be level lengthwise across the stream. The bridge shall have enough clearance beneath the structure to pass the design flood flow.

4.9.7 To avoid draining road surfaces directly into the stream, bridges should not be located at the bottom of an abrupt dip in the road grade. If the road climbs away from the crossing in one or both directions, the approaches should be flattened for at least 50 feet, with road surface runoff diverted into a vegetated buffer strip before reaching the bridge site or stream.

#### **4.10: Erosion Control Measures**

4.10.1 Where surface erosion would produce substantial amounts of sediment into running water, newly constructed fill slopes, or fills over 10 feet long or bare areas greater than contiguous 800 square feet shall be seeded and mulched at the completion of operations, especially in Riparian areas. Seeding shall incorporate wildlife biology and silviculture considerations.

- 4.10.2 Stabilize erodible, exposed soils by seeding, compacting, riprapping, benching, mulching or other suitable means prior to fall or spring runoff. Seed mixtures should reflect recommendations of forestry and wildlife biology.
- 4.10.3 Mitigate surface runoff from wet season use. Ditches, where they are needed, should drain to a sediment filter, especially before entering a stream zone.
- 4.10.4 Hay bale placement will be used to filter sediment and turbid runoff.
- 4.10.5 At the toe of potentially erodible fill slopes and particularly near stream zones, pile slash in a windrow parallel to the road to trap sediment. Slash filter windrows are effective at keeping sediment from entering stream channels. Windrows commonly measure 3 x 3 feet and consist of compacted slash installed along the base of the fill slope. Provide 15 feet wide breaks in windrows at firelines, ridges and/or 200 feet intervals for easier big game passage.

## **5: Road Construction & Reconstruction**

### **5.1: Clearing and Grubbing Vegetation**

- 5.1.1 Trees and other large vegetation should be felled and bucked. In addition to right-of-way clearing, hazardous or unsafe trees should also be felled.
- 5.1.2 Trees and shrubs should be left growing at the base of the proposed fillslope and the right-of-way should be kept to the minimum width necessary for the planned use of the road.
- 5.1.3 During grubbing of the surface, stumps should be removed from within the road prism and anywhere fill or sidecast material will be deposited. Mixing stumps and other vegetative debris into the road fill should always be avoided to prevent instability of the road base. Slash larger than 3 inches in diameter and 3 feet in length should be removed from the road prism and piled in slash filter windrows or burn bays.

### **5.2: Excavation, Grading and Compaction**

- 5.2.1 Minimize the extent of cut and fills in road construction/reconstruction, which may require engineering of roads in critical areas.
- 5.2.2 During road construction replace or modify culverts to accommodate 50 year storm flows, design stream crossings to prevent directing stream flow onto the road surface, outslope low-gradient road sections, and remove outboard berms which encourage channeling of surface runoff.
- 5.2.3 Sloping of cutbanks shall not excessively devegetate or destabilize cutslopes, which would produce sediment. General suggested run to rise slope ratios:

**Table E.5.2.3.1**

<i>Slope Material</i>	<i>Cut Slope Ratio</i>
Rock	1/4 : 1
Rock/soil mixed	1/2 : 1
Clay or silt loam	1 : 1
Fill slope, rock or mixed:	1 1/2 : 1
Unstabilized soil:	3 : 1

5.2.4 Construction will use sidecasting methods on gentle terrain, cut and fill (with compaction) on moderate slopes, or employ full bench construction techniques on steep slopes and where the road is near stream channels.

**Table E.5.2.4.1**

<i>Road Construction Type</i>	<i>Equipment combinations:</i>
Cut and Sidecast	Excavator or dozer; grader; water truck
Cut and Fill	Excavator and/or dozer; grader; water truck
Full bench (cut)	Excavator; dump truck; dozer; grader; water truck
Reconstruction	Excavator; dozer; loader; dump truck; grader

### 5.3: Sidecast Construction

5.3.1 Procedure: In sidecast construction, the dozer starts at the top of the proposed cutslope, excavating and sidecasting material until the desired road grade and width is obtained. Material is pushed or drifted in front of the blade to areas where fill is needed. Road fill is used to cover culverts, and build up flat or low areas along the alignment. Fill must support traffic, it needs to be spread and compacted as much as possible to develop sufficient strength.

5.3.2 Sidecasting construction methods are not suitable on steep or moderate slopes near stream channels where loose material could saturate during wet weather and slide downslope. During sidecast construction, it is critical to avoid letting sidecast or waste material enter streams or placing it where it could erode into a watercourse.

5.3.3 On moderately and steeply sloping lands, keep sidecast everywhere less than about three feet deep, measured perpendicular to the original ground surface. Within 400 feet of a watercourse, feather out the sidecast within 30 feet of the road edge. Roads built within a riparian zone, or roads constructed across moderate or steep slopes that extend downslope to a stream channel, shall not have sidecast more than 1 foot thick and sidecast is to be feathered out within 10 feet of the road.

5.3.4 Do not sidecast on ground slopes exceeding 55%, and do not develop sidecast slopes over 65%.

5.3.5 For more protective sidecast construction, use of a hydraulic excavator to pioneer the road bench shall cleanly remove slash, stumps and logs and place them at the base of the fillslope so they are not incorporated in the fill. After grubbing and clearing, the excavated mineral soil can be selectively placed and partially compacted by the equipment. Soil carefully placed using this method is more stable than pushed or sidecast material. 65% slope is the steepest that material can be placed without proper engineering.

#### **5.4: Cut and Fill with Compaction**

5.4.1 Application: On moderate and steep slopes, to improve the road's stability, using the excavator, the following construction methods apply: backcasting, multi-benching, and full benching with endhauling.

5.4.2 Multi-benching is a good way to develop a stable footing with a minimum of sidecasting. First, a bench is cut at the proposed base of the fill, about 30 feet below the elevation of the proposed road grade. It may be necessary to excavate and endhaul material from the first cut to prevent sidecast material downslope. Next, the operator moves slightly upslope to create another bench, compacting the spoil material onto the first bench downslope. After the second bench is completed, the process is repeated until the final road elevation is reached. The result is a fill keyed into the hill slope on small benches with little sidecast.

5.4.3 Single benching uses the same basic methods as multi-benching. After the first bench is cut, a dozer or excavator may be used to cut into the hillside above the bench to widen and raise the road bed. As the cutting progresses, the road bed is widened and layers of spoil material are added to the bench in lifts of 1 foot and compacted after each layer. Cutting, filling and compaction continues until the final grade and width is reached.

5.4.4 Back casting is a method of producing a full bench road with no endhauling. The soil must be medium to coarse grained and well drained, and the slopes cannot exceed 80%. It may not be a suitable technique on approaches to incised stream channels where emerging groundwater is common. The surface immediately in front of the excavator is cleared and grubbed, and organic debris is either sidecast or windrowed at the base of the proposed fillslope. Then, a deep full bench is cut in front of the excavator about 25 to 30 feet wide and 8 to 10 feet deep at the road center line. The earth materials from this cut are backcast and piled on the subgrade behind the excavator. Once the bench has been constructed, the piled subgrade material is leveled and graded by a dozer or the excavator, with little or no sidecasting. Because the roadbed materials are all excavated and placed with little compaction, they should be allowed to settle and drain before the surface is outsloped or final ditches and ditch relief culverts are installed. On steep slopes, the fill will have to be reinforced and subdrains added for springs or wet areas.



5.4.5 True compactors, such as roller type or vibratory compactors, should be used in critical areas where fill compaction is necessary to ensure that the road will not fail.

## **5.5: Full Bench Construction**

5.5.1 Application: Typically involves excavation of the road bed using a hydraulic excavator. A bench is cut into the rock or soil equal to the width of the road. No material is sidecast and spoil is used to fill low areas or stream crossings along the road alignment. Excess material is hauled offsite to a stable storage location, while only a very minor amount is drifted or feathered over and compacted on the road bench. Full bench road construction is typically reserved for moderate or steep slopes, or where a road approaches or parallels a stream channel that could be impacted by sidecasting.

5.5.2 Unstable rock, including soft or highly fractured sedimentary rocks, or rock with layering dipping steeply into the road cut, may not be suitable for full bench cuts. These deep cuts can remove critical toe support and initiate upslope failure. Deep, soft clays, lake deposits and other earth materials with similar physical properties may also be unsuitable for tall cuts because of their susceptibility to rotational slump or landslide type failures. Road design shall avoid locating any road construction where slopes are steeper than 60% and the soil or rock is weak.

## **5.6: Construction on Wet Soils**

5.6.1 Water emerging from road cutbanks can be controlled using a French drain or vertical drainage trench. The trench is excavated, lined on both sides and the bottom with a geotextile fabric, back filled with open graded, clean gravel and topped with fabric and soil. The fabric keeps fine soil materials from entering the trench and plugging the drain. The trench is then drained across the road prism in an outflow trench or subsurface drainage pipe.

5.6.2 Water emerging beneath the road bed can be controlled by installing a drainage blanket beneath the fill. This provides an easy path for the emerging water to flow out from under the road without saturating the road bed and overlying fill materials, thereby preventing rutting, rilling, muddy surface conditions or fill failures. In the field, a permeable geotextile blanket is laid down over the wet zone prior to road construction, and a gravel layer is backfilled over the top. This gravel blanket shall slope to the outside edge of the road and daylight near the base of the fill to ensure proper drainage. Another geotextile layer is then laid on top and native soils are spread and compacted over the top until the desired road bed level is attained.

## **5.7: Fill Material Placement, Construction, and Reconstruction**

5.7.1 Boulders, along with other large blocks and slabs of rock, should be stockpiled for use as future use in rock fills. If such materials are used in common fills, they are best buried at the base of the fill. Special effort should be made to obtain satisfactory compaction of the intervening material.

5.7.2 Where rock fills are specified, the rock should possess a minimum diameter of 2 inches and be free of fines.

5.7.3 Where fills are to be placed on existing slopes greater than 25% a base key should be excavated into competent material at the toe of the slope. The depth and extent of keys should be determined using geophysical expertise. All base keys should be at least a blade width. The existing ground surface that will receive fill should be benched at regular intervals.

5.7.4 Fill compaction: When reconstruction of fills or landslides occurs during dry summer months, water may be required since the moisture content of the soil may be below optimum for reworking compaction. If work proceeds during the winter months, it may require time to dry any onsite clay soils that are used as fill since their moisture will be above optimum.

## ***6: Road Closure and Rehabilitation***

### **6.1: Rehabilitation Plan**

6.1.1 Interdisciplinary team members and field personnel will identify previously constructed access roads, landings, wet areas, streambanks, and old skid roads in the planning area that have been damaged by previous activities or left to decay, and develop for these a rehabilitation plan to address watershed protection.

6.1.2 Watershed restoration/rehabilitation projects could include draining or ripping old skid trails, out-sloping roads, closing roads, replacing culverts, debris/slide stabilization and erosion control seeding and mulching.

6.1.3 Wet-season damage to roads can be mitigated by allowing access only for necessary management activities, by construction of removable barricades; by making provision in timber sales contract (or planting contract) for closing roads after operations are completed; or by surfacing roads so they may be used during wet seasons.

### **6.2: Road Closure and Rehabilitation**

6.2.1 Local spur roads with only occasional or limited use, should be closed and rehabilitated as “inactive roads”. Inactive roads are not being used for commercial hauling, but may provide seasonal or future access. The temporary closure of any road should require some or all of the following treatments following active use.

6.2.2 Clear ditches and culverts, crown, out-slope or in-slope the road surface with water bars to minimize erosion.

6.2.3 Access should be totally blocked by gates or barriers such as ditches, boulders, mounds of dirt and debris, or by removal of a section of roadbed.

6.2.4 Rehabilitate the disturbed area of the road by seeding to grasses and forbs favorable to wildlife and forestry.

6.2.5 Leave inactive roads in a condition that provides adequate drainage without requiring further maintenance, but check periodically for damage.

#### **6.4: Abandoned Road Rehabilitation**

Roads not needed for logging, forest management, or recreation should be abandoned as follows. Spur roads with high potential for failure should be treated as temporary and abandoned after harvesting with full erosion control measures undertaken.

6.4.1 Culverts and fill materials may be removed from drainages where necessary. The excavated soil may need to be layered and compacted on stable slopes not exceeding 20%. Excavated soils, and drainage slopes where fill has been removed, may be planted with trees and/or shrubs at closely-spaced intervals to provide root strength to soils, reduce rainfall impacts, disperse surface flows and impede rilling.

6.4.2 Roads should be ripped or tilled where necessary for successful planting. They should be water barred after ripping at intervals of no greater than 200 feet, so that water is not collected and conveyed long distances along ripped furrows, to discharge over the edge of the road.

6.4.3 Road and landing surfaces, and cut and fill slopes, could be planted with conifers where this is compatible with forest management plans. Planting and erosion control measures on unrocked roads should be completed immediately following abandonment.

6.4.4 Allow adequate drainage by out-sloping any remaining roadbed, pulling culverts that might become plugged, water barring at frequent intervals for cross drainage. Ditches should be constructed at seepage points to convey water across the road.

6.4.5 Landings should be drained with multiple water bars to avoid concentration of discharge of surface flows at a single location. Rip-rap, or anchored logs or stumps may be placed at discharge points to dissipate fluid energy.

6.4.6 Where natural slopes below landings exceed 70%, organic debris and soil placed over the edge should be pulled. Organic matter should be segregated and soil layer-placed and tractor compacted on slopes not exceeding 20%. Bare soil beneath landings as well as excavated, compacted soil should be planted with conifer seedlings.

### ***7: Snag Management Protocols***

Save large-diameter snags, when available, that are a minimum of 20 feet tall (U.S. Forest Service 1985), in every 5-25 acre stand, adjacent to green trees, and in clusters if available (Bull *et al.* 1997). Retain snags on all slope aspects and positions of the slope (Bull *et al.* 1997). Prefer-

ences should be given to the retention of the younger snag age classes (harder snags), although older and softer snags should not be excluded (Bull *et al.* 1997).

### **7.1: Snag Retention Densities**

7.1.1 Warm, dry ponderosa pine, Douglas-fir (generally forests below 4000 ft on the Reservation, Habitat types 110–230, 320–370, slopes 0-60%)

1 to 2 snags per acre at least 20" dbh.

7.1.2 Grand fir, spruce, hemlock, subalpine fir, and cool Douglas fir (generally forests above 4000 feet and lower elevation north slopes on the Reservation, habitat types 250-319, 410-480, 505, 506, 510-560, 565-790)

Range of 6–12 snags, 20" dbh, per acre: ponderosa pine and western larch where available, Douglas fir as a second choice.

### **7.2: Green Leave Tree Densities to Ensure Snag Recruitment**

Due to the need to provide a continuous supply of snags over time, and in light of the fact that snags of adequate diameters may not be produced in the future under normal rotations, there is a need to designate green trees as snag replacements. Non-merchantable and cull trees showing obvious signs of wildlife use such as nesting, feeding, or denning or trees with broken or dead tops or of poor form are most appropriate green leave tree candidates (U.S. Forest Service 1985). However, if these trees are not available merchantable trees may be left where it is deemed necessary to meet future cavity habitat needs. Green tree leave densities should be no less than 2 times the number of snags retained in alternating 5-25 acre blocks (Bull *et al.* 1997).

# **Appendix F**

## **Implementation and Monitoring Plan**

### **F.0 Introduction**

This Appendix contains the Implementation and Monitoring Plan for the IRMP Preferred Alternative B, Stqhesiple' Integrated Resource Alternative. Many different Tribal Departments, Programs and Committees will be working to achieve the 100–Year Desired Future Conditions and 20–Year Goals contained in the Preferred Alternative B of the IRMP DPEIS. Implementation and Monitoring will be tracked using the Table contained in this Appendix.

**Table F-1 Implementation and Monitoring**

<i>Resource Category</i>	<i>DFCs or Goals (from Chapter 2)</i>	<i>Indicator(s) of whether Goal was met (from Chapter 4)</i>	<i>Data (per indicator) Currently Available? (y, p, or n)</i>	<i>Funding Currently Available? (y, p, or n)</i>	<i>Lead Departments and/or Programs</i>
Landscape	<ul style="list-style-type: none"> <li>• Increase Tribal involvement on all land use changes and development projects in the aboriginal territory and on the Reservation.</li> <li>• Increase Tribal staffing to consult on proposed developments throughout the aboriginal territory and on the Reservation.</li> <li>• Work with other entities to establish biodiversity corridors through already-developed areas that are linked with adjacent natural areas.</li> </ul>	<ul style="list-style-type: none"> <li>• Habitat loss, fragmentation, and native species decline.</li> </ul>	Partial	Partial	NR Department, Planning Department and Lake Management Department
Culture	<ul style="list-style-type: none"> <li>• Preserve and restore Tribal traditional culture.</li> <li>• Aggressively work with private, local, and federal entities to protect and manage traditional cultural resources and sites.</li> <li>• Increase awareness regarding the significance of these resources.</li> <li>• Provide for education of traditional practices and Tribal history to non-native people.</li> <li>• Protect sacred and culturally sig-</li> </ul>	<ul style="list-style-type: none"> <li>• The alteration of resource conditions related to the Tribe's traditional subsistence activities, cultural practices and beliefs.</li> <li>• Changes in land use, expansion of development, and loss of structure or place.</li> <li>• Compliance with</li> </ul>	Partial	Partial	Culture Program, NR Department, Planning Department, Lake Management Department and Cultural Committee



nificant sites and properties through the Tribal cultural program.

- Build a Tribal Interpretive Center.

the National Historic Preservation Act.

## *Natural Environment*

### Air

- At minimum, maintain air quality at U.S. EPA status of Class II Airshed (good air quality but not pristine).
- Continue to monitor and collect air quality and meteorological (weather) data.
- Reassess guidelines for air pollutants on a continuing basis.
- Continue to develop working relationships with federal, state and local entities to network and form resource directories for pollution sources.
- Increase education, outreach and mitigation for indoor air quality problems.
- Develop a Tribal program to address point sources of air pollution.
- Work to improve air quality to protect human health and ecology.

- Compliance with the Clean Air Act.

Partial

Air Quality Program

### Biodiversity

- Coordinate with the local, state, federal, and private entities for the restoration and maintenance of species and habitats.
- Encourage community involvement in caring for the natural biodiversity on the Reservation.
- The loss of habitat, habitat fragmentation, and migration corridor loss of connectivity from agriculture, forestry, recreation, human population growth,

Partial

Fisheries, Wildlife and GIS Programs

<i>Resource Category</i>	<i>DFCs or Goals (from Chapter 2)</i>	<i>Indicator(s) of whether Goal was met (from Chapter 4)</i>	<i>Data (per indicator) Currently Available? (y, p, or n)</i>	<i>Funding Currently Available? (y, p, or n)</i>	<i>Lead Departments and/or Programs</i>
<i>Biodiversity (cont.)</i>					
	<ul style="list-style-type: none"> <li>• Develop and implement management plans to control non-native species of fish and wildlife by the year 2010.</li> <li>• Develop and implement management plans to control noxious weeds by the year 2006.</li> <li>• Continue to offer outreach programs for area residents and youth to share information about biodiversity.</li> <li>• Involve Tribal elders in passing on knowledge of natural resources.</li> </ul>	roads and other human impacts.			
	<ul style="list-style-type: none"> <li>Initiate an educational curriculum for area schools to raise student awareness of ecological processes, environmental potentials and plant and animal diversity.</li> </ul>				
Coeur d'Alene Lake	<ul style="list-style-type: none"> <li>• Continue to regulate all proposed encroachments within Tribal waters to provide safe recreational access, maintain shoreline beauty and protect biodiversity.</li> <li>• Minimize pollution caused by watercraft.</li> <li>• Promote active management and protection for native fishes in Coeur d'Alene Lake.</li> <li>• Implement programs to reduce non-point source and nutrient</li> </ul>	<ul style="list-style-type: none"> <li>• Changes in quality of habitat for native species.</li> <li>• Changes in water quality parameters.</li> <li>• Number of encroachments on Tribal waters.</li> <li>• Trends in recreational use of the Lake.</li> <li>• Ability to conduct traditional cultural and</li> </ul>	Partial	Partial	Lake Management Department (with assistance from other Tribal departments and programs as desired)

	<p>pollution in Coeur d’Alene Lake to improve and maintain water quality.</p> <ul style="list-style-type: none"> <li>• Coordinate the development of a shoreline management plan.</li> <li>• Implement and enforce the Tribe’s encroachment program.</li> <li>• Monitor Lake conditions on an ongoing basis.</li> <li>• Create more opportunities for Tribal members to conduct subsistence activities in Coeur d’Alene Lake.</li> <li>• Manage commercial and recreational activities on Coeur d’Alene Lake.</li> </ul>	<p>subsistence activities on the Lake.</p>			
Fire	<ul style="list-style-type: none"> <li>• Use fire for ecological restoration activities.</li> <li>• Work cooperatively to protect all structures on the Reservation from fire damage.</li> <li>• Develop fuel breaks in wildland urban interface and wildland areas to protect resource values and lives.</li> <li>• Develop a multi-year fire plan for prescribed burns and let burn activities for ecosystem maintenance, thereby reducing risks to wildland urban interface areas. Draft the plan in coordination with other Tribal resource managers and with other entities’ fire plans.</li> <li>• As areas are restored to pre-settlement fire regimes, fire will be used to maintain these conditions.</li> </ul>	<ul style="list-style-type: none"> <li>• Changes or loss of habitat from fire and fire suppression.</li> <li>• Changes in agricultural lands from continued burning.</li> </ul>	Partial	Partial	Forestry / Fire and Land Services Programs
Fish	<ul style="list-style-type: none"> <li>• Implement Tribal Fisheries Management Plans to achieve 20–Year goals and 100–Year DFCs.</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of naturally producing populations of native fish.</li> </ul>	Partial	Partial	Fisheries Program

<i>Resource Category</i>	<i>DFCs or Goals (from Chapter 2)</i>	<i>Indicator(s) of whether Goal was met (from Chapter 4)</i>	<i>Data (per indicator) Currently Available? (y, p, or n)</i>	<i>Funding Currently Available? (y, p, or n)</i>	<i>Lead Departments and/or Programs</i>
Fish ( <i>cont.</i> )	<ul style="list-style-type: none"> <li>• Restore, protect, expand and re-establish fish populations in select areas to sustainable levels to provide harvest opportunities.</li> <li>• Encourage community involvement in caring for native fish populations and habitats.</li> <li>• Develop cooperative agreements, design habitat restoration projects and pursue funding to accomplish fisheries goals.</li> <li>• Protect, restore, and enhance existing terrestrial and aquatic fisheries habitat resources to meet increased demands (i.e. traditional cultural, subsistence, and recreational) on these resources.</li> <li>• Restore bull trout populations to a level where adult escapement is well distributed, and at least six of the St. Joe River spawning tributaries support healthy spawning populations at any one time, and spawning is occurring in the Coeur d'Alene River portion of the basin. Harvest 1,000 fish annually from the Coeur d'Alene subbasin by the year 2020.</li> <li>• Protect and restore remaining stocks of genetically pure westslope cutthroat trout to ensure their continued</li> </ul>	<ul style="list-style-type: none"> <li>• Change (increase or decrease) in abundance and distribution of native fish.</li> <li>Watershed road density.</li> <li>• Riparian road index.</li> <li>Percent altered riparian vegetation.</li> <li>• Equivalent clearcut area.</li> </ul>			

existence in the basin. Maintain catch rates of over 1.0 fish per hour in the St. Joe, Coeur d'Alene and St. Maries Rivers. Produce an annual catch of over 1,000 fish in Coeur d'Alene Lake and an annual catch of 11,000 fish from Lake, Benewah, Evans and Alder Creeks. Achieve good fish population distribution throughout the tributaries to the basin.

- Protect and enhance any remaining stocks of Redband trout or other salmonids present in the Hangman watershed. Specifically, achieve good spawning populations in Mission Creek, Sheep Creek, Nehchen Creek and Indian Creek. Achieve good rearing habitat in the mainstem of Hangman Creek to allow migration of trout from the Spokane River.
- Provide both short and long-term harvest opportunities that support Tribal subsistence activities and a sport-angler harvest. Maintain fisheries for introduced species to include an annual harvest of greater than 500,000 kokanee, greater than 5,000 chinook salmon, greater than 10,000 rainbow trout in Tribal catch-out ponds, and an average catch rate of greater than 0.5 fish per hour for largemouth bass.

<i>Resource Category</i>	<i>DFCs or Goals (from Chapter 2)</i>	<i>Indicator(s) of whether Goal was met (from Chapter 4)</i>	<i>Data (per indicator) Currently Available? (y, p, or n)</i>	<i>Funding Currently Available? (y, p, or n)</i>	<i>Lead Departments and/or Programs</i>
Forestry	<ul style="list-style-type: none"> <li>• Continue to implement the Tribal Forest Management Plan on Tribal and allotted lands.</li> <li>• Maintain areas designated for a single or multi-story well stocked forest, providing goods and resources to the community without seriously conflicting with other natural resource elements. Enhance multiple use goals and practices on allotments and Tribal trust lands.</li> <li>• Encourage forest restoration in identified areas where forested lands have been converted to agricultural areas.</li> <li>• Coordinate Tribal forest management practices with private forest land - owners on the Reservation to provide consistent management.</li> </ul>	<ul style="list-style-type: none"> <li>• Forest diversity in terms of structure, density and distribution.</li> <li>• Loss of old growth and age class distribution of the forested areas.</li> <li>• Sustainable yield in forested areas.</li> </ul>	Partial	Partial	Forestry / Fire Program
Minerals	<ul style="list-style-type: none"> <li>• Any mining conducted on the Reservation should be done in a manner which does not negatively affect surrounding lands, waters, biotic or cultural resources.</li> <li>• Formulate an interdisciplinary team and implement a program to review all proposed mining activities and assess potential impacts based on submitted work plans by the year 2006.</li> </ul>	<ul style="list-style-type: none"> <li>• Number of new mining sites (aggregate) on the Reservation.</li> </ul>	Yes	Partial	Forestry / Fire Program



<ul style="list-style-type: none"> <li>• Develop a GIS database to track locations of all mining activities, including rock quarries and material sites.</li> </ul>	<ul style="list-style-type: none"> <li>• Review the federal mining code, research developing a Tribal Mining Code and, if warranted, write a Tribal Mining Code.</li> <li>• Develop up to three additional Tribal aggregate mining sites (less than 5 acres each) when not in conflict with ecologically and culturally sensitive areas.</li> </ul>				Fisheries Program
Riparian	<ul style="list-style-type: none"> <li>• Protect, restore and enhance riparian areas.</li> <li>• Encourage use of Tribal recommendations for minimum buffers on all Reservation streams (Appendix E).</li> <li>• Encourage community involvement in caring for riparian resources.</li> <li>• Inventory current riparian conditions in key watersheds to identify areas that are in need of restoration and to identify areas that currently function properly and need protection by the year 2006 (key watersheds are Evans, Alder, Benewah, Lake and Hangman).</li> <li>• Prepare and implement general and specific restoration plans in key watersheds.</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of riparian habitats and shoreline areas.</li> </ul>	Partial	Partial	

<i>Resource Category</i>	<i>DFCs or Goals (from Chapter 2)</i>	<i>Indicator(s) of whether Goal was met (from Chapter 4)</i>	<i>Data (per indicator) Currently Available? (y, p, or n)</i>	<i>Funding Currently Available? (y, p, or n)</i>	<i>Lead Departments and/or Programs</i>
<i>Riparian (cont.)</i>					
	<ul style="list-style-type: none"> <li>• Develop a cost efficient means of replanting native vegetation and to stabilize streams in key watersheds.</li> <li>• Acquire riparian habitat for maintenance and/or restoration in key watersheds.</li> <li>• Work with landowners and agencies to provide cost share and incentives for riparian protection and restoration.</li> </ul>				
Soil	<ul style="list-style-type: none"> <li>• Improve soil fertility through the use and monitoring of Best Management Practices (BMPs).</li> <li>• Improve soil permeability through the use and monitoring of BMPs.</li> <li>• Reestablish trees or permanent cover on acreage with marginal soil classes.</li> <li>• Encourage more minimum till and/or no-till farming techniques.</li> </ul>	<ul style="list-style-type: none"> <li>• Erosion potential and rates.</li> <li>• Loss of chemical fertility, organic matter, and micro-organisms.</li> </ul>	Partial	Partial	Land Services Program
Water	<ul style="list-style-type: none"> <li>• Coordinate with other entities and the public to restore Reservation water bodies to Tribal water quality standards.</li> <li>• Coordinate with other entities and the public to bring the 303(d)-listed water bodies into compliance with water quality standards through the implementation of Total Maximum Daily Loads (TMDLs) and Tribal water quality standards.</li> </ul>	<ul style="list-style-type: none"> <li>• Impacts on water quality and quantity from agricultural practices, transportation systems, forestry practices, water systems, human habitation and other human impacts.</li> </ul>	Partial	Partial	Water Resources Program

Wetlands	<ul style="list-style-type: none"> <li>• Encourage implementation of water quality-based BMPs on all Reservation streams.</li> <li>• Expand the Tribal Water Resource Program to bring Reservation streams and lakes into compliance with the Tribe's Water Quality Standards by the year 2024. Protect these streams and lakes from anthropogenic (human-caused) pollution.</li> </ul>			
	<ul style="list-style-type: none"> <li>• Coordinate with other entities and the public to restore and maintain wetlands.</li> <li>• Restore proper functioning conditions to a minimum of 30 percent (estimated at 6,425 acres) of the native riparian/wetland habitats to support vertebrate species that use these habitats by the year 2024.</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of wetlands from agriculture, forestry, transportation, grazing, human habitation and other human impacts.</li> </ul>	Partial	Fisheries Program
Wildlife	<ul style="list-style-type: none"> <li>• Coordinate with other entities and the public to restore and maintain wildlife habitats and species across the Reservation, including Threatened and Endangered Species (TES).</li> <li>• Provide short and long term harvest opportunities that support both subsistence activities and limited sport harvest.</li> <li>• Continue to pursue and acquire funding to protect and/or restore key pieces of wildlife habitat such as wetlands, riparian areas and big game winter range.</li> </ul>	<ul style="list-style-type: none"> <li>• Impacts on native wildlife species and native wildlife species' habitat from agricultural practices, forestry practices, transportation systems, recreation practices, and human habitation.</li> </ul>	Partial	Wildlife Program

<i>Resource Category</i>	<i>DFCs or Goals (from Chapter 2)</i>	<i>Indicator(s) of whether Goal was met (from Chapter 4)</i>	<i>Data (per indicator) Currently Available? (y, p, or n)</i>	<i>Funding Currently Available? (y, p, or n)</i>	<i>Lead Departments and/or Programs</i>
<i>Wildlife (cont.)</i>	<ul style="list-style-type: none"> <li>• Encourage community involvement in caring for wildlife populations and habitats on the Reservation.</li> <li>• Reintroduce as many of the native extirpated (locally extinct) wildlife species within the Reservation as possible.</li> <li>• Control populations of non-native wildlife species within the Reservation, especially those that adversely affect native populations.</li> <li>• Establish and implement annual population monitoring of culturally important species.</li> <li>• Establish designated travel corridors that provide refuge for wildlife species.</li> <li>• Quantify the effects of predators on game species, particularly big game.</li> <li>• Establish a process of monitoring calving success on all big game species.</li> <li>• Designate summer and winter range for big game on the Reservation and manage fires and forest harvest to maximize forage availability on summer ranges.</li> <li>• Adjust road closures as necessary to ensure protection of wildlife populations during critical periods.</li> <li>• Protect and restore a minimum of 1000 acres of Palouse Steppe.</li> </ul>				

- Designate 1000 acres of moist coniferous forest for development of old growth conditions.
- Designate 2500 acres of low elevation dry forest habitat for development of old growth open woodland conditions.
- This is only a separate resource category in Chapter 4 and therefore has an indicator but no specific DFCs or goals.

Threatened & Endangered Species	Partial	Partial	Partial	Wildlife Program
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*Human Environment*

- |             |         |     |         |                       |
|-------------|---------|-----|---------|-----------------------|
| Agriculture | Partial | Yes | Partial | Land Services Program |
|-------------|---------|-----|---------|-----------------------|
- Reduce soil erosion through implementation of agricultural Best Management Practices (BMPs).
  - Encourage planting of perennial crops and utilizing no-till farming practices to reduce soil erosion.
  - Continue to research alternatives to agricultural field burning.
  - If feasible alternatives to agricultural field burning are developed, then implement them to reduce emissions.
  - Retain existing farmland for future generations, restore marginal farmlands to forest lands. Continue to grow wheat, barley, lentils, peas and grass seed.
  - Reduce agricultural-related erosion by 25 percent by the year 2024.
  - Reduce the application of chemicals by 50 percent on agricultural lands by the year 2024.

Resource Category	Indicator(s) of whether DFCs or Goals (from Chapter 2)	Funding	Lead	Departments
		Data (per indicator) Goal was met (from Chapter 4)	Currently Available? (y, p, or n)	Available? (y, p, or n) and/or Programs
Agriculture (cont.)				
Development	<ul style="list-style-type: none"><li>• Evaluate Tribal agricultural lands for productivity and determine the suitability of other resource values by the year 2006.</li><li>• Work with other entities and the public to evaluate private, non-Trust agricultural lands for productivity and to develop management recommendations.</li></ul>			
	<ul style="list-style-type: none"><li>• Coordinate land use and development patterns (planning and implementation) between the Tribe, other entities and the public.</li><li>• Encourage well thought out development projects in designated areas through sound planning.</li><li>• Develop visually pleasing buildings that are complimentary to the natural and cultural setting in environmentally suited areas.</li><li>• Provide for a Tribal culturally specific built environment.</li></ul>	<ul style="list-style-type: none"><li>• Loss of natural environment to development.</li></ul>	Partial	Planning Department (with assistance from other departments and programs as desired)
Energy	<ul style="list-style-type: none"><li>• Research, develop, and promote the use of alternative energy and fuel sources such as wind, solar, hydrogen, and others.</li><li>• Promote the research and use of</li></ul>	<ul style="list-style-type: none"><li>• Number of acres in use for energy transmission or development.</li></ul>	Partial	Planning Department



<p>alternative technology to conserve energy and other resources.</p> <ul style="list-style-type: none"> <li>• Regulate the use and transport of nuclear materials on or through the Reservation consistent with federal law.</li> </ul>				
Environmental Health	<ul style="list-style-type: none"> <li>• Assist in the proper design, construction and operation of schools, day cares, private water and septic systems, food service facilities and community buildings for optimal public health and safety.</li> <li>• Strengthen the collaboration between Tribal Environmental Health, Benewah Medical Center and the State of Idaho's Panhandle Health District.</li> <li>• Work to eliminate the installation and operation of sub-standard water and sewer systems.</li> <li>• Eliminate vector-borne illnesses on the Reservation through the use of integrated programs for pest control, habitat management, and public education.</li> <li>• Develop programs to deal with chemical and physical hazards, including hazardous chemical spills, household hazardous chemicals, and preventable injuries.</li> <li>• Assist in the process to design, construct, and operate public water recreation facilities (including</li> </ul>	<ul style="list-style-type: none"> <li>• Continuation and expansion of the Tribal Environmental Health Program.</li> <li>• Improvement in Reservation morbidity and mortality statistics affected by on-going environmental health programs.</li> <li>• Sustained improvement in mean inspection scores for all types of facilities undergoing routine environmental health and safety inspections.</li> <li>• Development of baseline statistical data for all environmental health core program areas.</li> <li>• Reduction in preventable injuries attributable to chemical and/or</li> </ul>	Partial	Environmental Programs Office

<i>Resource Category</i>	<i>DFCs or Goals (from Chapter 2)</i>	<i>Indicator(s) of whether Goal was met (from Chapter 4)</i>	<i>Data (per indicator) Currently Available? (y, p, or n)</i>	<i>Funding Currently Available? (y, p, or n)</i>	<i>Lead Departments and/or Programs</i>
<i>Environmental Health (cont.)</i>					
	swimming pools, spas, waterslides, spray pools, and bathing beaches) to meet or exceed all applicable standards for sanitation and safety.	physical hazards.			
	• Reduce or eliminate waterborne illnesses associated with these types of facilities.	• Improvement in chemical and bacteriological water quality for individual water systems.			
	• Clearly define and expand the role of the Tribal Environmental Health Program.	• Clean up of existing open dumpsites and monitoring of potentially hazardous abandoned landfill sites.			
	• Collect data on potential contaminants and, if found, eliminate or mitigate.	• Increased public/ environmental health awareness resulting from health education and community outreach activities.			
	• Continue State/Tribal cooperation with Idaho State inspections.				
	• Develop Tribal primacy where desirable and feasible.				
Housing	<ul style="list-style-type: none"> <li>• Implement the Tribal Housing Authority Indian Housing Plan.</li> <li>• Coordinate with other entities and the public to incorporate conservation subdivision designs into housing developments.</li> <li>• Work with other entities and the public to create consistency between Tribal and non-Tribal housing plans, especially for the location and density of new housing.</li> </ul>	<ul style="list-style-type: none"> <li>• The number, type and location of new houses and subdivisions.</li> </ul>	Partial	No	Housing Department



<i>Resource Category</i>	<i>DFCs or Goals (from Chapter 2)</i>	<i>Indicator(s) of whether Goal was met (from Chapter 4)</i>	<i>Data (per indicator) Currently Available? (y, p, or n)</i>	<i>Funding Currently Available? (y, p, or n)</i>	<i>Lead Departments and/or Programs</i>
Pesticides	<ul style="list-style-type: none"> <li>• Build/enhance relationships with the regulated community regarding Tribal pesticide enforcement activities on the Reservation.</li> <li>• Enhance relationships with the Idaho State pesticide program to improve communication and cooperative investigations.</li> <li>• Continue to maintain, enforce and update the Coeur d'Alene Tribal Code and Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) on Circuit Rider Cooperating Reservations.</li> <li>• Continue compliance use inspections and follow-up inspections.</li> <li>• Continue to communicate with nation-wide Tribal pesticide enforcement programs through existing networks such as Tribal Pesticide Program Council (TPPC) and the Institute for Tribal Environmental Professionals (ITEP).</li> </ul>	<ul style="list-style-type: none"> <li>• The extent or area of pesticides use.</li> <li>• The type and effects of pesticides used.</li> </ul>	Partial	Partial	Pesticide Program
Recreation	<ul style="list-style-type: none"> <li>• Manage the Reservation segment of the "Trail of the Coeur d'Alenes."</li> <li>• Work closely with the State of Idaho to assure a seamless connection between State and Tribal portions of the Trail of the Coeur d'Alenes.</li> <li>• Develop a Tribal Recreation Plan.</li> <li>• Identify and develop additional</li> </ul>	<ul style="list-style-type: none"> <li>• Changes in acreages and number of developed recreation and water recreation facilities and locations.</li> </ul>	Partial	Partial	Lake Management Department

recreational sites and parks as desired and appropriate.

- Develop a boat launch and campsite.
- Aid in the development of Camp Larson (recreation facility) planning and operations.
- Implement a State/Tribal trail management plan for the Trail of the Coeur d'Alenes.
- Develop and update recreation codes that meet the needs of future Tribal activities.

Solid/  
Hazardous  
Waste

- Properly store, transport, handle, and dispose of hazardous materials on the Reservation.
- Coordinate with other entities and the public to develop a solid waste management plan for the Reservation.
- Promote source reduction, composting, reuse and recycling of solid wastes.

- Amount of solid waste generated on the Reservation.
- Amount of hazardous materials stored on or transported through the Reservation.

Partial

Partial

Environmental  
Programs Office  
(coordinated closely  
with the Planning  
Department)

Land Use Recommendations (common to all alternatives)

- Restore and maintain Tribal traditional cultural land use for subsistence activities as desired.
- Maintain the rural character of the Reservation in all LMRs except for areas designated for development.
- Encourage maintenance of existing farmland and forestland.
- Encourage maintenance and restoration of wetlands, riparian areas, streams and forestland.
- Discourage subdivision of property in all LMRs except for areas designated for development.

- Changes in land use from current land use.

Partial

Partial

Planning Department

<i>Resource Category</i>	<i>DFCs or Goals (from Chapter 2)</i>	<i>Indicator(s) of whether Goal was met (from Chapter 4)</i>	<i>Data (per indicator) Currently Available? (y, p, or n)</i>	<i>Funding Currently Available? (y, p, or n)</i>	<i>Lead Departments and/or Programs</i>
<b>Land Use Recommendations (cont.)</b>					
	<ul style="list-style-type: none"> <li>• Develop a Land Use Plan for the Reservation, including a Shoreline Management Plan.</li> <li>• Develop open space plans for Reservation watersheds.</li> <li>• Utilize principles of conservation zoning to require conservation of open space identified in the plans when property is developed (Arendt 1999).</li> </ul>				
Social and Economics	<ul style="list-style-type: none"> <li>• A Social and Economic impact analysis is included as part of Chapter 4 Environmental Consequences. The Social and Economics section has indicators to measure change but the Desired Future Conditions and Goals that relate to the Social and Economics section are contained in all of the other resource categories listed above.</li> </ul>	<ul style="list-style-type: none"> <li>• Changes in the five quality of life criteria: <ul style="list-style-type: none"> <li>• Economic and subsistence</li> <li>• Spiritual / moral</li> <li>• Aesthetics</li> <li>• Community well-being</li> <li>• Personal well-being</li> </ul> </li> </ul> <p>Also:</p> <ul style="list-style-type: none"> <li>• Changes in rural character and quality of life.</li> <li>• Change in composition of population.</li> <li>• Change, quality and distribution of employment opportunities.</li> <li>• Change and distribution of real personal income.</li> </ul>	Partial	Partial	Planning Department



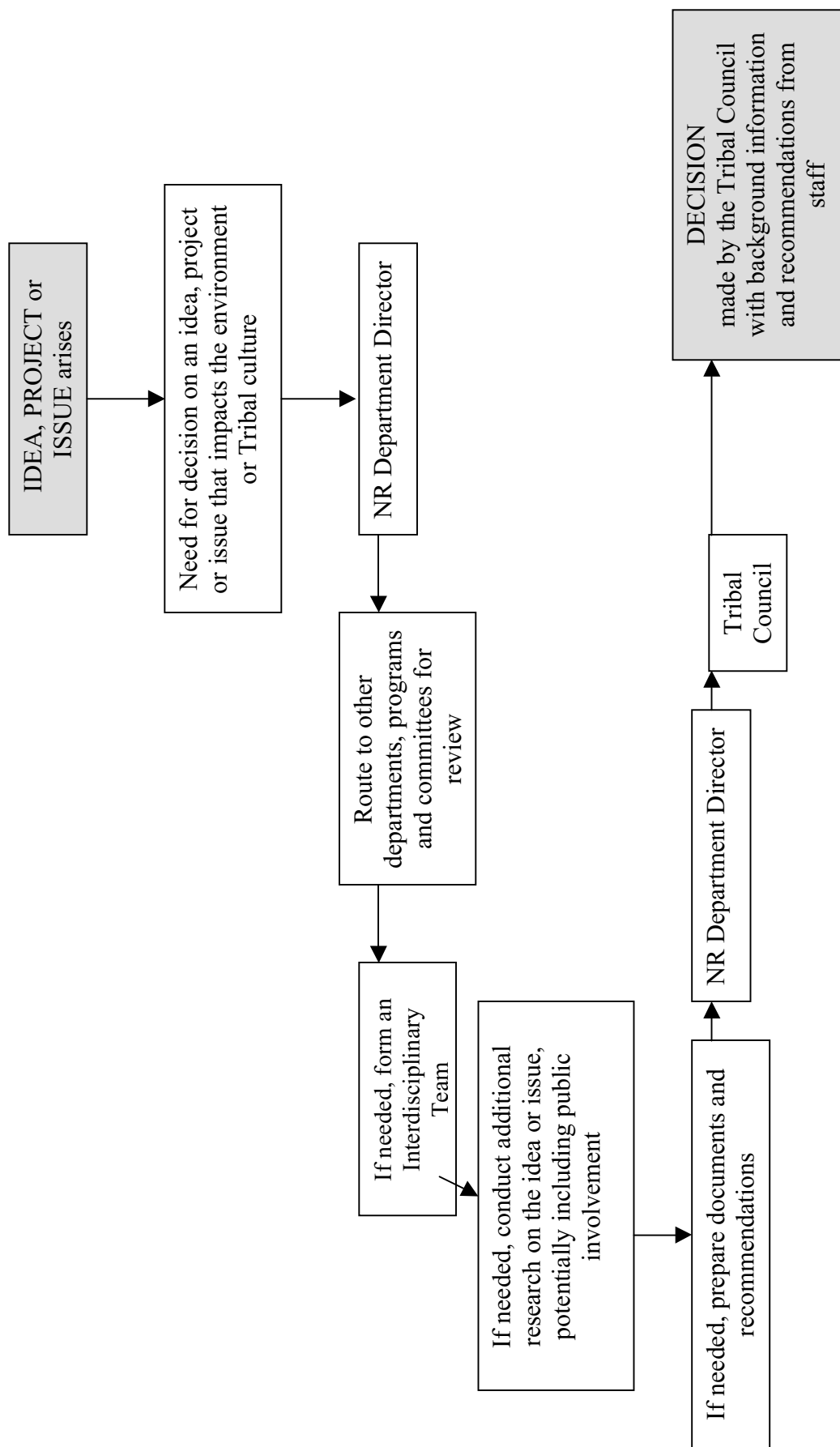
## **Appendix G**

### **Integrated Resource Management Plan Conceptual Decision-Making Process**

## Appendix G

### Integrated Resource Management Plan

#### Conceptual Decision-Making Process



This flowchart depicts a conceptual consultation and decision route for both Tribal environmental decisions and for decisions that impact the Tribal environment and Tribal culture. The route is designed to allow for consistent environmental impact review and consideration before project plans are finalized for funding or implementation purposes. A more detailed and complete process may be developed in the future.

## Appendix H

### Terrestrial and Aquatic Species Lists

#### Wetland/Riparian Vegetation List Observed in the Hangman Creek Watershed (Hangman Creek Watershed Management Plan 1994; Scaroni 1998).

<i>Scientific Name</i>	<i>Common Name</i>
<i>Camassia quamash</i>	Camas
<i>Populus tricocarpa</i>	Black Cottonwood
<i>Salix lutea</i>	Yellow Willow
<i>Salix exigua</i> spp. <i>exigua</i>	Coyote Willow
<i>Salix exigua</i> spp. <i>melanopsis</i> var. <i>tenerrima</i>	Coyote Willow
<i>Prunus virginiana</i> var. <i>melanocarpa</i>	Black Chokecherry
<i>Phalaris arundinacea</i>	Reed Canarygrass
<i>equisetum</i> spp.	Horsetail
<i>Clematis ligusticifolia</i>	Western Clematis
<i>Rosa nutkana</i> var. <i>hispida</i>	Rose
<i>Pinus ponderosa</i>	Ponderosa Pine
<i>Scirpus acutus</i>	Hardstem Bullrush
<i>Glyceria barcalis</i>	Northern Mannagrass
<i>Betula occidentalis</i> var. <i>occidentalis</i>	Water Birch
<i>Pseudotsuga menziesii</i> var. <i>glauca</i>	Douglas Fir
<i>Alnus incana</i> var. <i>occidentalis</i>	Mountain Alder
<i>Acer glabrum</i>	Rocky Mountain Maple
<i>Cornus sericea</i> var. <i>occidentalis</i>	Red-osier Dogwood
<i>Rhus trilobata</i>	Skunkbush sumac
<i>Crataegus douglasii</i> var. <i>douglasii</i>	Hawthorn
<i>Abies grandis</i>	Grand Fir
<i>Taxus brevifolia</i>	Pacific Yew
<i>Salix alba</i> var. <i>calva</i>	Golden Willow
<i>Tanacetum vulgare</i>	Common Tansy
<i>Symphoricarpos albus</i>	Snowberry
<i>Ribes</i> spp.	Currant
<i>Heracleum lanatum</i>	Cow Parship
<i>Typha latifolia</i>	Cattail
<i>Carex nebraskensis</i>	Nebraska Sedge
<i>Sparganium angustifolium</i>	Bur-reed
<i>Salix lasiandra</i> var. <i>caudata</i>	Pacific Willow
<i>Salix scouleriana</i>	Scouler's Willow

**Wildlife Native to the Coeur d'Alene Reservation (Groves, *et al.* 1997;  
Mock 1980; Stebbins 1985, Nussbaum et al. 1983, Hutto 1995 and data  
on file with the Coeur d'Alene Tribal Wildlife Office).**

<i>Common Name</i>	<i>Scientific Name</i>	<i>Habitat</i>	<i>Forest Condition</i>
<u><i>Native Amphibians</i></u>			
Long-toed Salamander	<i>Ambystoma macrodactylum</i>	LF	(e,s,p,em,m,og) wf
Tiger Salamander	<i>Ambystoma tigrinum</i>	LRWFA	(e,s,p,em,m,og) wf
Coeur d'Alene Salamander	<i>Plethodon idahoensis</i>	RW	
Idaho Giant Salamander	<i>Dicamptodon aterrimus</i>	LRF	(em,m,og) wf
Tailed Frog	<i>Ascaphus truei</i>	RF	(em,m,og) wf
Western Toad	<i>Bufo boreas</i>	LRWF	(e,s,p) wf
Boreal Chorus Frog	<i>Pseudacris maculata</i>	WFA	(e,s,p,em,m,og) wf
Pacific Tree Frog	<i>Pseudacris regilla</i>	LRWF	(e,s,p,em,m,og) wf
Wood Frog	<i>Rana sylvatica</i>	LRWF	(e,s,p,em,m,og) wf
Columbia Spotted Frog	<i>Rana pretiosa</i>	LRWF	(e,s,p,em,m,og) wf
<u><i>Introduced Amphibians</i></u>			
Bull Frog	<i>Rana catesbeiana</i>	L	
<u><i>Native Reptiles</i></u>			
Short-horned Lizard	<i>Phrynosoma douglassii</i>	FA	(e,s,p,em,m,og)
Northern Alligator Lizard	<i>Elgaria coerulea</i>	FA	(e,s,p,em,m,og) df
Western Skink	<i>Eumeces skiltonianus</i>	RF	(e,s,p,em,m,og) df
Painted Turtle	<i>Chrysemys picta</i>	LRW	
Rubber Boa	<i>Charina bottae</i>	WF	(e,s,p,em,m,og) df
Racer	<i>Coluber constrictor</i>	WFA	(e,s)
Western Terrestrial	<i>Thamnophis elegans</i>	WA	
Garter Snake			
Common Garter Snake	<i>Thamnophis sirtalis</i>	WFA	(e,s,p,em,m,og) wf
<u><i>Native Birds</i></u>			
Pied-billed Grebe	<i>Podilymbus podiceps</i>	LW	
Red-necked Grebe	<i>Podiceps grisegena</i>	LRW	
American Bittern	<i>Botaurus lentiginosus</i>	LRW	
Great Blue Heron	<i>Ardea herodias</i>	LRW	
Canadian Goose	<i>Branta canadensis</i>	LRWA	
Wood Duck	<i>Aix sponsa</i>	LRW	
Green-winged Teal	<i>Anas crecca</i>	LRW	
Mallard	<i>Anas platyrhynchos</i>	LRWA	
Northern Pintail	<i>Anas acuta</i>	LRWA	

<i>Common Name</i>	<i>Scientific Name</i>	<i>Habitat</i>	<i>Forest Condition</i>
Blue-winged Teal	<i>Anas discors</i>	LRW	
Cinnamon Teal	<i>Anas cyanoptera</i>	LRW	
Northern Shoveler	<i>Anas clypeata</i>	LRW	
Gadwall	<i>Anas strepera</i>	LRW	
American Wigeon	<i>Anas americana</i>	LW	
Redhead	<i>Aythya americana</i>	LRW	
Harlequin Duck	<i>Histrionicus histrionicus</i>	R	
Hooded Merganser	<i>Lophodytes cucullatus</i>	LRW	
Common Merganser	<i>Mergus merganser</i>	LRW	
Turkey Vulture	<i>Cathartes aura</i>	F	(e,s,p,em,m,og)
Osprey	<i>Pandion haliaetus</i>	W	
Northern Harrier	<i>Circus cyaneus</i>	WA	
Sharp-shinned Hawk	<i>Accipiter striatus</i>	F	(p,em,m,og)
Cooper's Hawk	<i>Accipiter cooperii</i>	F	(m,og)
Northern Goshawk	<i>Accipiter gentilis</i>	WFA	(m,og)
Red-tailed Hawk	<i>Buteo jamaicensis</i>	FA	(e,s,p,em,m,og)
Swainson's Hawk	<i>Buteo swainsoni</i>	FA	e,s
American Kestrel	<i>Falco sparverius</i>	WFA	e,s
Peregrine Falcon•	<i>Falco peregrinus</i>		
Prairie Falcon•	<i>Falco mexicanus</i>		
Spruce Grouse	<i>Dendragapus canadensis</i>	F	em,m,og
Blue Grouse	<i>Dendragapus obscurus</i>	F	em,m
Ruffed Grouse	<i>Bonasa umbellus</i>	W	em,m
Sharp-tailed Grouse•	<i>Tympanuchus phasianellus</i>	WA	
Virginia Rail	<i>Rallus limicola</i>	W	
Sora	<i>Porzana carolina</i>	LRW	
American Coot	<i>Fulica americana</i>	W	
Sandhill Crane	<i>Grus canadensis</i>	LRWA	
Killdeer	<i>Charadrius vociferus</i>	LW	
Spotted Sandpiper	<i>Actitis macularia</i>	W	
Common Snipe	<i>Gallinago gallinago</i>	LRW	
Black Tern	<i>Chlidonias niger</i>	LRW	
Mourning Dove	<i>Zenaidura macroura</i>	FA	e,s,p,em
Common Barn-owl	<i>Tyto alba</i>	A	
Western Screech Owl	<i>Otus kennicottii</i>	WF	e,s,p
Great Horned Owl	<i>Bubo virginianus</i>	WFA	e,s,p,em,m,og
Northern Pygmy-owl	<i>Glaucidium gnoma</i>	F	em,m,og
Barred Owl	<i>Strix varia</i>	WF	em,m,og
Great Grey Owl	<i>Strix nebulosa</i>	WFA	em,m,og
Long-eared Owl	<i>Asio otus</i>	WFA	e,s,p,em,m,og
Short-eared Owl	<i>Asio flammeus</i>	WA	
Northern Saw-whet Owl	<i>Aegolius acadicus</i>	WF	p,em,m,og
Common Nighthawk	<i>Chordeiles minor</i>	FA	e,s,p,em,m,og

<i>Common Name</i>	<i>Scientific Name</i>	<i>Habitat</i>	<i>Forest Condition</i>
Vaux's Swift	<i>Chaetura vauxi</i>	FW	em,m,og
Black-chinned Hummingbird	<i>Archilochus alexandri</i>	WF	e,s,p,em
Calliope Hummingbird	<i>Stellula calliope</i>	WF	s,p,em,m,og
Rufous Hummingbird	<i>Selasphorus rufus</i>	F	s,p,em,m,og
Belted Kingfisher	<i>Ceryle alcyon</i>	LRS	
Lewis' Woodpecker	<i>Melanerpes lewis</i>	WF	p,em,m,og
Red-naped Sapsucker	<i>Sphyrapicus nuchalis</i>	F	em,m,og
Downy Woodpecker	<i>Picoides pubescens</i>	WF	em,m,og
Hairy Woodpecker	<i>Picoides villosus</i>	WF	em,m,og
White-headed Woodpecker	<i>Picoides albolarvatus</i>	F	m,og
Northern Flicker	<i>Colaptes auratus</i>	WF	m,og
Pileated Woodpecker	<i>Dryocopus pileatus</i>	F	m,og
Olive-sided Flycatcher	<i>Contopus borealis</i>	WF	m,og
Western wood-pewee	<i>Contopus sordidulus</i>	WF	m,og
Willow Flycatcher	<i>Empidonax traillii</i>	WF	e,s,p,em,m,og
Hammond's Flycatcher	<i>Empidonax hammondi</i>	F	m,og
Dusky Flycatcher	<i>Empidonax oberholseri</i>	WF	e,s,p,em
Cordilleran Flycatcher	<i>Empidonax occidentalis</i>	F	p,em,m,og
Say's Phoebe	<i>Sayornis saya</i>	A	
Western Kingbird	<i>Tyrannus verticalis</i>	A	
Eastern Kingbird	<i>Tyrannus tyrannus</i>	WFA	e,s,p,em,m
Horned Lark	<i>Eremophila alpestris</i>	A	
Tree Swallow	<i>Tachycineta bicolor</i>	WA	
Violet-green Swallow	<i>Tachycineta thalassina</i>	WFA	p,em,m
Northern Rough-winged Swallow	<i>Stelgidopteryx serripennis</i>	W	
Bank Swallow	<i>Riparia riparia</i>	W	
Cliff Swallow	<i>Hirundo pyrrhonota</i>	W	
Barn Swallow	<i>Hirundo rustica</i>	WA	
Gray Jay	<i>Perisoreus canadensis</i>	WF	e,s,p,em,m,og
Steller's Jay	<i>Cyanocitta stelleri</i>	F	e,s,p,em,m,og
Black-billed Magpie	<i>Pica pica</i>	WFA	e,s
American Crow	<i>Corvus brachyrhynchos</i>	WA	
Common Raven	<i>Corvus corax</i>	FA	e,s,p,em,m,og
Black-capped Chickadee	<i>Parus atricapillus</i>	F	em,m,og
Mountain Chickadee	<i>Parus gambeli</i>	WF	p,em,m,og
Chestnut-backed Chickadee	<i>Parus rufescens</i>	F	m,og
Red-breasted Nuthatch	<i>Sitta canadensis</i>	WF	em,m,og
Brown Creeper	<i>Certhia americana</i>	WF	m,og
House Wren	<i>Troglodytes aedon</i>	FA	e,s,p,em
Winter Wren	<i>Troglodytes troglodytes</i>	F	m,og
American Dipper	<i>Cinclus mexicanus</i>	WF	riparian deciduous
Golden-crowned Kinglet	<i>Regulus satrapa</i>	F	m,og
Ruby-crowned Kinglet	<i>Regulus calendula</i>	FA	em,m,og



<i>Common Name</i>	<i>Scientific Name</i>	<i>Habitat</i>	<i>Forest Condition</i>
Western Bluebird	<i>Sialia mexicana</i>	WA	riparian deciduous
Mountain Bluebird	<i>Sialia currucoides</i>	FA	e,s,p,em
Townsend's Solitaire	<i>Myadestes townsendi</i>	WF	p,em,m
Veery	<i>Catharus fuscescens</i>	W	
Swainson's Thrush	<i>Swainson's Thrush</i>	F	e,s,p,em
Hermit Thrush	<i>Catharus guttatus</i>	WF	m,og
American Robin	<i>Turdus migratorius</i>	WFA	e,s,p,em,m
Varied Thrush	<i>Ixoreus naevius</i>	F	m,og
Gray Catbird	<i>Dumetella carolinensis</i>	WF	riparian deciduous
Cedar Waxwing	<i>Bombycilla cedrorum</i>	WF	e,s,p,em
Plumbeus Vireo	<i>Vireo plumbeus</i>	F	e,s,p,em
Warbling Vireo	<i>Vireo gilvus</i>	F	riparian deciduous
Red-eyed Vireo	<i>Vireo olivaceus</i>	WF	riparian deciduous
Orange-crowned Warbler	<i>Vermivora celata</i>	WFA	e,s,p,em
Nashville Warbler	<i>Vermivora ruficapilla</i>	WF	e,s,p,em,m,og
Yellow Warbler	<i>Dendroica petechia</i>	WFA	riparian deciduous
Yellow-rumped Warbler	<i>Dendroica coronata</i>	FA	e,s,p,em
Townsend's Warbler	<i>Dendroica townsendi</i>	F	em,m,og
American Redstart	<i>Setophaga ruticilla</i>	FA	riparian deciduous
Northern Waterthrush	<i>Seiurus noveboracensis</i>	WF	riparian deciduous
MacGillivray's Warbler	<i>Oporornis tolmiei</i>	WF	e,s,p,em
Common Yellowthroat	<i>Geothlypis trichas</i>	WF	riparian deciduous
Wilson's Warbler	<i>Wilsonia pusilla</i>	WF	p,em,m,og
Yellow -breasted Chat	<i>Icteria virens</i>	WFA	riparian deciduous
Western Tanager	<i>Piranga ludoviciana</i>	F	e,s,p,em,m,og
Black-headed Grosbeak	<i>Pheucticus melanocephalus</i>	WF	e,s,p,em
Lazuli Bunting	<i>Passerina amoena</i>	WF	e,s,p
Spotted Towhee	<i>Pipilo maculatus</i>	WF	e,s,p,em
Chipping Sparrow	<i>Spizella passerina</i>	WFA	s,p,em
Lark Sparrow	<i>Chondestes grammacus</i>	A	
Savannah Sparrow	<i>Passerculus sandwichensis</i>	WA	
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	A	
Fox Sparrow	<i>Passerella iliaca</i>	WF	e,s,p,em
Song Sparrow	<i>Melospiza melodia</i>	WF	riparian deciduous
Lincoln's sparrow	<i>Melospiza lincolnii</i>	WF	e,s,p
Dark-eyed Junco	<i>Junco hyemalis</i>	FA	e,s,p,em,m,og
Bobolink	<i>Dolichonyx oryzivorus</i>	WA	
Red-winged Blackbird	<i>Agelaius phoeniceus</i>	WA	
Western Meadowlark	<i>Sturnella neglecta</i>	A	
Yellow-headed Blackbird	<i>Xanthocephalus</i> <i>xanthocephalus</i>	WA	
Brewer's Blackbird	<i>Euphagus cyanocephalus</i>	WA	
Brown-headed Cowbird	<i>Molothrus ater</i>	FA	e,s,p,em,m,og

<i>Common Name</i>	<i>Scientific Name</i>	<i>Habitat</i>	<i>Forest Condition</i>
Bullock's Oriole	<i>Icterus bullockii</i>	WFA	riparian deciduous
Cassin's Finch	<i>Carpodacus cassinii</i>	F	e,s,p,em,m,og
House Finch	<i>Carpodacus mexicanus</i>	FA	urban woodlands
Red Crossbill	<i>Loxia curvirostra</i>	F	e,s,p,em,m,og
Pine Siskin	<i>Carduelis pinus</i>	FA	e,s,p,em,m,og
American Goldfinch	<i>Carduelis tristis</i>	WFA	e,s,p,em
Evening Grosbeak	<i>Coccothraustes vespertinus</i>	F	e,s,p,em,m,og
<i>Introduced Game Birds</i>			
California Quail	<i>Callipepla gambelii</i>	FA	e,s,p,em
Ring-necked Pheasant	<i>Phasianus colchicus</i>	A	
Hungarian Partridge	<i>Perdix perdix</i>	A	
Bobwhite Quail	<i>Colinus virginianus</i>	FA	e,s,p,em
Wild Turkey	<i>Meleagris gallopavo</i>	FA	e,s,p,em
<i>Native Mammals</i>			
Masked Shrew	<i>Sorex cinereus</i>	F	e,s,p,em,m,og
Vagrant Shrew	<i>Sorex vagrans</i>	WF	e,s,p,em,m,og
Dusky Shrew	<i>Sorex monticolus</i>	WF	e,s,p,em,m,og
Water Shrew	<i>Sorex palustris</i>	W	
Little Brown Myotis	<i>Myotis lucifugus</i>	F	m,og
Yuma Myotis	<i>Myotis yumanensis</i>	WF	e,s,p,em,m,og
Long-eared Myotis	<i>Myotis evotis</i>	WF	e,s,p,em,m,og
Long-legged Myotis	<i>Myotis volans</i>	F	em,m,og
Silver-haired Bat	<i>Lasionycteris noctevagans</i>	WF	em,m,og
Big Brown Bat	<i>Eptesicus fuscus</i>	F	em,m,og
Hoary Bat	<i>Lasiurus cinereus</i>	F	em,m,og
Townsend's Big-eared Bat	<i>Plecotus townsendii</i>	F	e,s,p,em,m,og
American Pika	<i>Ochotona princeps</i>	talus/meadow	
Mountain Cottontail	<i>Sylvilagus nuttallii</i>	WF	e,s
Snowshoe Hare	<i>Lepus americanus</i>	WF	p,em,m,og
Yellow Pine Chipmunk	<i>Tamias amoenus</i>	F	e,s,p,em,m
Red-tailed Chipmunk	<i>Tamias ruficaudus</i>	F	em,m,og
Yellow-bellied Marmot	<i>Marmota flaviventris</i>	talus/rock	
Columbia Ground Squirrel	<i>Spermophilus columbianus</i>	WF	e,s,p,em
Golden-mantled Ground Squirrel	<i>Spermophilus lateralis</i>	F	e,s,p,em
Red Squirrel	<i>Tamiasciurus hudsonicus</i>	WF	p,em,m,og
Northern Flying Squirrel	<i>Glaucomys sabrinus</i>	WF	em,m,og
Northern Pocket Gopher	<i>Thomomys talpoides</i>	WA	
American Beaver	<i>Castor canadensis</i>	RWF	e,s,p,em,m,og

<i>Common Name</i>	<i>Scientific Name</i>	<i>Habitat</i>	<i>Forest Condition</i>
Deer Mouse	<i>Peromyscus maniculatus</i>	WFA	e,s,p,em,m,og
Bushy-tailed Woodrat	<i>Neotoma cinerea</i>	F	em,m,og
Southern Red-backed Vole	<i>Clethrionomys gapperi</i>	F	em,m,og
Heather Vole	<i>Phenacomys intermedius</i>	F	e,s,p,em,m,og
Meadow Vole	<i>Microtus pennsylvanicus</i>	WA	
Montane Vole	<i>Microtus montanus</i>	WA	
Long-tailed Vole	<i>Microtus longicaudus</i>	WF	e,s,p,em,m,og
Water Vole	<i>Microtus richardsoni</i>	WF	
Muskrat	<i>Ondatra zibethicus</i>	LRW	
Western Jumping Mouse	<i>Zapus princeps</i>	WF	e,s,p,em
Common Porcupine	<i>Erethizon dorsatum</i>	WF	p,em,m,og
Coyote	<i>Canis latrans</i>	F	e,s,p,em,m,og
Gray Wolf•	<i>Canis lupus</i>	F	e,s,p,em,m,og
Red fox	<i>Vulpes vulpes</i>	FA	e,s
Black Bear	<i>Ursus americanus</i>	F	e,s,p,em
Grizzly or Brown Bear•	<i>Ursus arctos</i>	F	e,s,p,em
Common Raccoon	<i>Procyon lotor</i>	W	
American Marten	<i>Martes americana</i>	F	em,m,og
Fisher	<i>Martes pennanti</i>	F	m,og
Ermine	<i>Mustela erminea</i>	WF	e,s,p,em,m,og
Long-tailed Weasel	<i>Mustela frenata</i>	WF	e,s,p,em,m,og
Mink	<i>Mustela vison</i>	WF	riparian
Wolverine•	<i>Gulo gulo</i>	F	e,s,p,em,m,og
American Badger	<i>Taxidea taxus</i>	FA	e,s
Western Spotted Skunk	<i>Spilogale gracilis</i>	A	
Striped Skunk	<i>Mephitis mephitis</i>	WFA	e,s,p,em
Northern River Otter	<i>Lutra canadensis</i>	LRW	
Mountain Lion	<i>Felis concolor</i>	F	e,s,p,em,m,og
Lynx•	<i>Lynx lynx</i>	WF	e,s,p,em,m,og
Bobcat	<i>Lynx rufus</i>	WF	e,s,p,em,m,og
Elk	<i>Cervus elaphus</i>	WF	e,s,p,em
Mule Deer	<i>Odocoileus hemionus</i>	FA	e,s,p,em
White-tailed Deer	<i>Odocoileus virginianus</i>	WFA	e,s,p,em
Moose	<i>Alces alces</i>	WF	e,s,p,em
Woodland Caribou•	<i>Rangifer tarandus</i>	FW	m,og
Bighorn Sheep•	<i>Ovis canadensis</i>	Cliff grasslands	

Habitat: L = Lakes, R = Rivers and Streams, W = Wetlands, F = Forest Land, A = Agricultural

Forest Condition: e = establishment, s = seedling & sapling stages, p = pole stage, em = early mature forest, m = mature forest, og = old growth forest, wf = wet forest, df = dry forest.

- indicates species thought to have been extirpated from the Reservation since settlement.

**Plant species associated with the various forest habitat types known to be present on the Reservation. (Cooper, et al. 1991).**

<i>Common Name</i>	<i>Scientific Name</i>
<i>Tree Species:</i>	
grand fir	<i>Abies grandis</i>
subalpine fir	<i>Abies lasiocarpa</i>
paper birch	<i>Betula papyrifera</i>
western larch	<i>Larix occidentalis</i>
Engelmann spruce	<i>Picea engelmannii</i>
white bark pine	<i>Pinus albicaulis</i>
lodgepole pine	<i>Pinus contorta</i>
western white pine	<i>Pinus monticola</i>
ponderosa pine	<i>Pinus ponderosa</i>
douglas-fir	<i>Pseudotsuga menziesii</i>
western redcedar	<i>Thuja plicata</i>
western hemlock	<i>Tsuga heterophylla</i>
mountain hemlock	<i>Tsuga mertensiana</i>
<i>Shrub Species:</i>	
Rocky Mountain maple	<i>Acer glabrum</i>
Sitka alder	<i>Alnus sinuata</i>
serviceberry	<i>Amelanchier alnifolia</i>
black hawthorn	<i>Crataegus douglasii</i>
ocean-spray	<i>Holodiscus discolor</i>
Labrador tea	<i>Ledum glandulosum</i>
Utah honeysuckle	<i>Lonicera utahensis</i>
fool's huckleberry	<i>Menziesia ferruginea</i>
devil's club	<i>Oplopanax horridum</i>
pachistima	<i>Pachistima myrsinites</i>
syringa	<i>Philadelphus lewisii</i>
ninebark	<i>Physocarpus malvaceus</i>
common chokecherry	<i>Prunus virginiana</i>
white rhododendron	<i>Rhododendron albiflorum</i>
prickly currant	<i>Ribes lacustre</i>
baldhip rose	<i>Rosa gymnocarpa</i>
Nootka rosa	<i>Rosa nutkana</i>
pearship rose	<i>Rosa woodsii</i>
western thimbleberry	<i>Rubus parviflorus</i>
Scouler willow	<i>Salix scouleriana</i>
white spiraea	<i>Spiraea betulifolia</i>
common snowberry	<i>Symphoricarpos albus</i>

<i>Common Name</i>	<i>Scientific Name</i>
Pacific yew	<i>Taxus brevifolia</i>
blue huckleberry	<i>Vaccinium globulare</i>
<i>Dwarf Shrubs and Low Woody Plants:</i>	
bearberry	<i>Arctostaphylos uva-ursi</i>
creeping Oregon grape	<i>Berberis repens</i>
western wintergreen	<i>Gaultheria humifusa</i>
twinline	<i>Linnaea borealis</i>
red mountain-heather	<i>Phyllodoce empetrifomis</i>
yerba buena	<i>Satureja douglasii</i>
dwarf huckleberry	<i>Vaccinium caespitosum</i>
dwarf bilberry	<i>Vaccinium myrtillus</i>
grouse whortleberry	<i>Vaccinium scoparium</i>
<i>Ferns and Allied Taxa:</i>	
maidenhair fern	<i>Adiantum pedatum</i>
ladyfern	<i>Athyrium filix-femina</i>
oak-fern	<i>Gymnocarpium dryopteris</i>
western swordfern	<i>Polystichum munitum</i>
bracken fern	<i>Pteridium aquilinum</i>
<i>Graminoids:</i>	
bluebunch wheatgrass	<i>Apopyron spicatum</i>
Columbia brome	<i>Bromus vulgaris</i>
bluejoint reedgrass	<i>Calamagrostis canadensis</i>
pinegrass	<i>Calamagrostis rubescens</i>
elk sedge	<i>Carex geyeri</i>
Ross sedge	<i>Carex rossii</i>
Idaho fescue	<i>Festuca idahoensis</i>
smooth woodrush	<i>Luzula hitchcockii</i>
<i>Perennial Forbs:</i>	
common yarrow	<i>Achillea millefolium</i>
baneberry	<i>Actaea rubra</i>
trail-plant	<i>Adenocaulon bicolor</i>
windflower	<i>Anemone piperi</i>
wild sarsaparilla	<i>Aralia nudicaulis</i>
bigleaf sandwort	<i>Arenaria macrophylla</i>
heartleaf arnica	<i>Arnica cordifolia</i>
mountain arnica	<i>Arnica latifolia</i>
wild ginger	<i>Asarum caudatum</i>

<i>Common Name</i>	<i>Scientific Name</i>
showy aster	<i>Aster conspicuus</i>
arrowleaf balsamroot	<i>Balsamorhiza sagittata</i>
prince's pine	<i>Chimaphila umbellata</i>
alpine circaea	<i>Circaea alpina</i>
queencup beadlily	<i>Clintonia uniflora</i>
western goldthread	<i>Coptis occidentalis</i>
bunchberry dogwood	<i>Cornus canadensis</i>
Hooker fairy-bell	<i>Disporum hookeri</i>
wartberry fairy-bell	<i>Disporum trachycarpum</i>
Jeffrey's shooting star	<i>Dodecatheon jeffreyi</i>
woods strawberry	<i>Fragaria vesca</i>
strawberry	<i>Fragaria virginiana</i>
northern bedstraw	<i>Galium triflorum</i>
rattlesnake-plantain	<i>Goodyera oblongifolia</i>
roundleaf alumroot	<i>Heuchera cylindrica</i>
Canby's licorice-root	<i>Ligusticum canbyi</i>
licorice-root	<i>Ligusticum verticillatum</i>
tall bluebells	<i>Mertensia paniculata</i>
Brewer's mitrewort	<i>Mitella breweri</i>
alpine mitrewort	<i>Mitella pentandra</i>
side-flowered mitrewort	<i>Mitella stauropetala</i>
mountain sweet-cicely	<i>Osmorhiza chilensis</i>
bracted lousewort	<i>Pedicularis bracteosa</i>
coiled-beak lousewort	<i>Pedicularis contorta</i>
leafy lousewort	<i>Pedicularis racemosa</i>
Jacob's ladder	<i>Polemonium pulcherrimum</i>
common pink wintergreen	<i>Pyrola asarifolia</i>
one-sided wintergreen	<i>Pyrola secunda</i>
arrowleaf groundsel	<i>Senecio triangularis</i>
false Solomon's seal	<i>Smilacina racemosa</i>
starry Solomon seal	<i>Smilacina stellata</i>
twisted-stalk	<i>Streptopus amplexifolius</i>
evergreen synthyris	<i>Synthyris platycarpa</i>
western meadowrue	<i>Thalictrum occidentale</i>
coolwort foamflower	<i>Tiarella tirfoliata</i>
false bugbane	<i>Trautvetteria caroliniesis</i>
white trillium	<i>Tillium ovatum</i>
Sitka valerian	<i>Valeriana sitchensis</i>
American false hellebore	<i>Veratrum viride</i>
hook violet	<i>Viola adunca</i>
pioneer violet	<i>Viola glabella</i>
round-leaved violet	<i>Viola orbiculata</i>
beargrass	<i>Xerophyllum tenax</i>



## Tribal Culturally Important Species

(Coeur d'Alene Tribe archival information 1995 and Tribal Language Center 1999)

### PLANTS (the context is plants used for foods, not construction or other uses)

Family	Latin name	Common name	Coeur d'Alene name
Usneaceae	<i>Alectoria jubata</i> L.	Black tree moss (lichen)	sech'echt, sma <del>l</del> qn
Pinaceae	<i>Pinus ponderosa</i> Dougl.	Ponderosa pine, yellow pine	Not Available
	<i>Pinus contorta</i> Dougl.	Lodgepole pine, black pine	qoqo'lit
	<i>Pinus albicaulis</i> Engelm.	White bark pine, silver pine	tadalqw
Salicaceae	<i>Populus tremuloides</i> Michx.	Aspen, quaking aspen	du <del>u</del> du <del>u</del> p or dare <del>t</del> du <del>u</del> du <del>u</del> p
	<i>Populus trichocarpa</i> T. & G.	Black cottonwood	mulsh
Portulacaceae	<i>Claytonia lanceolata</i> Pursh	Springbeauty, Indian potato	Not Available
	<i>Lewisia rediviva</i> Pursh	Bitterroot	sp'it'em
Berberidaceae	<i>Berberis repens</i> Lindl.	Oregon grape	sqweyu'
	<i>Berberis aquifolium</i> Pursh	Oregon grape	
Grossulariaceae	<i>Ribes</i> spp.	Gooseberry	hnt'it''me'lbs
	<i>Ribes</i> spp.	Wild currant	sts'erus
Rosaceae	<i>Amelanchier alnifolia</i> Nutt.	Serviceberry	s <del>l</del> aq
	<i>Crataegus douglasii</i> Lindl.	Black hawthorn, black hawberry	squ <del>u</del> 'nech
	<i>Crataegus columbiana</i> Howell	Red hawthorn, red hawberry	Not Available
	<i>Frageria</i> spp.	Strawberry	sts <del>l</del> aqwm
	<i>Prunus virginiana</i> L.	Chokecherry	ṭ <del>l</del> aqhwṭ <del>l</del> uqhw (plural); laqhw <del>l</del> uqhw
	<i>Prunus emarginata</i> (Dougl.) Walp. var. <i>emarginata</i>	Bittercherry	pachlen
	<i>Rosa</i> spp.	Wild rose, roseberry, rose hips	Skhwaayapa'qn (wild rose)
	<i>Rubus parviflorus</i> Nutt.	Thimbleberry	polpolqn
	<i>Rubus leucodermis</i> Dougl.	Black raspberry	mtsukw, ti <del>l</del> /te <del>l</del> 'lmkhw (blackberry vine)
	<i>Rubus idaeus</i> L.	Red raspberry	hnhalaatse'

<i>Family</i>	<i>Latin name</i>	<i>Common name</i>	<i>Coeur d'Alene name</i>
Eleagnaceae	<i>Shepherdia cana-densis</i> (L.) Nutt.	Soapberry, foam berry, Indian ice cream	sqh <sub>u</sub> sm
Umbelliferae	<i>Heracleum lanatum</i> Michx.	Cow parsnip	qh <sub>o</sub> qh <sub>h</sub> p
	<i>Lomatium cous</i> (Wats.) Coult. & Rose	Cous	ka'us, piwye
	<i>Lomatium</i> spp.	Wild celery	Not Available
	<i>Sium suave</i> Walt.	Water-parsnip	Not Available
Cornaceae	<i>Cornus stolonifera</i> Michx.	Pacific dogwood	stichskhwelp
Ericaceae	<i>Arctostaphylos uva-ursi</i> (L.) Spreng.	Bearberry, kinnikinnick	(berry) ilch, (plant) alcha <sub>h</sub> palqw
	<i>Vaccinium membra-naceum</i> Dougl.	Huckleberry	st'shastq; st'sha <sub>h</sub> (plural)
	<i>Vaccinium</i> spp.	Small blueberry	st'eq'hn
Gentianaceae	<i>Frasera montana</i> Mulford	White fraseria, stink root	masms
Caprifoliaceae	<i>Sambucus</i> spp.	Elderberry	ts'ekukw, ts'ek'ukw, (elderberry bush) 'ts'akukwalqw
Compositae	<i>Balsamorhiza sagit-tata</i> (Pursh) Nutt.	Balsamroot	Not Available
Alismataceae	<i>Sagittaria latifolia</i> Willd.	Water potato, wapato	sqigwts
Lilliacae	<i>Allium geyeri</i> Wats.	Wild onion	sisch
	<i>Allium cernuum</i> Roth	Wild onion	qwl <sub>i</sub> w'ls <sub>h</sub>
	<i>Camassia quamash</i> (Pursh) Greene	Camas	etqhwe', ap <sub>h</sub> 'etkhwe' (baked), p'ekhw pukhwn (camas bulbs), saha'w lutqhwe' (raw)
	<i>Fritillaria pudica</i> (Pursh) Spreng. ( <i>Lillium colum-bianum</i> )	Yellow bell	Not Available

## Birds

<i>Order and Family</i>	<i>Latin name</i>	<i>Common name</i>	<i>Coeur d'Alene name</i>
Gaviiformes: Gaviidae	<i>Gavia immer</i> (Brunnich)	Common loon	ch'eqhq'n
Ciconiiformes: Ardeidae	<i>Botaurus lentigi-nosus</i> (Rackett)	American bittern	Not Available

<i>Family</i>	<i>Latin name</i>	<i>Common name</i>	<i>Coeur d'Alene name</i>
Anseriformes: Anatidae	<i>Olor columbianus</i> (Ord)	Whistling swan	qhewitqhawit (generic name for a white swan)
	<i>Branta canadensis</i> (Linnaeus)	Canada goose	s(ihnt
	<i>Anas platyrhynchos</i> <i>platyrhynchos</i> Linnaeus	Mallard	qhwa <sub>t</sub> qhwa <sub>t</sub> (generic name for duck)
	<i>Anas acuta</i> Linnaeus	Pintail	Same as above
	<i>Anas carolinensis</i> Gmelin	Green-winged teal	Same as above
	<i>Anas discors discors</i> Linnaeus	Blue-winged teal	Same as above
	<i>Anas cyanoptera</i> <i>septentrionalium</i> Snyder and Lumsden	Cinnamon teal	Same as above
	<i>Mareca americana</i> (Gmelin)	American widgeon	Same as above
	<i>Spatula clypeata</i> (Linnaeus)	Shoveler	Same as above
	<i>Aix sponsa</i> (Linnaeus)	Wood duck	Same as above
	<i>Aythya americana</i> (Eyton)	Redhead	Same as above
	<i>Aythya collaris</i> (Donovan)	Ring-necked duck	Same as above
	<i>Aythya valisineria</i> (Wilson)	Canvasback	Same as above
	<i>Aythya affinis</i> (Eyton)	Lesser scaup	Same as above
	<i>Bucephala clangula</i> <i>americana</i> (Bonaparte)	Common goldeneye	Same as above
	<i>Bucephala albeola</i> (Linnaeus)	Bufflehead	Same as above
	<i>Oxyura jamaicensis</i> <i>rubida</i> (Wilson)	Ruddy duck	Same as above
Galliformes: Tetraonidae	<i>Dendragapus obscurus</i> <i>pallidus</i> Swarth	Blue grouse	sq'w <sub>e</sub> dups (generic name for grouse)
	<i>Bonasa umbellus phaia</i> Aldrich and Friedman	Ruffed grouse	Same as above
	<i>Pedioecetes phasianellus</i> <i>columbianus</i> (Ord)	Sharp-tailed grouse, prairie chicken	Same as above

<i>Family</i>	<i>Latin name</i>	<i>Common name</i>	<i>Coeur d'Alene name</i>
Charadriiformes: Scolopacidae	<i>Capella gallinago delicata</i> (Ord)	Common snipe	p'ēsta
Columbiformes: Columbidae	<i>Zenaidura macroura marginella</i> (Woodhouse)	Mourning dove	Not Available
Passeriformes: Corvidae	<i>Pica pica hudsonia</i> (Sabine)	Black-billed magpie	Not Available
	<i>Corvus brachyrhynchos hesperis</i> Ridgeway	Common crow	ałqhaqhaqh

### Mammals

<i>Order and Family</i>	<i>Latin name</i>	<i>Common name</i>	<i>Coeur d'Alene name</i>
Lagomorpha: Leporidae	<i>Sylvilagus nuttallii nuttallii</i>	Nuttall's cottontail	sqwıtsmsh (generic name for rabbit)
	<i>Lepus americanus pineus</i>	Snowshoe hare	Same as above
	<i>Lepus townsendii townsendii</i>	White-tailed jack rabbit	Same as above
Rodentia: Sciuridae	<i>Spermophilus colum- bianus columbianus</i>	Columbian ground squirrel	Not Available
	<i>Spermophilus lateralis tescorum</i>	Golden-mantled ground squirrel	Not Available
	<i>Marmota flaviventris avara</i>	Yellow-bellied marmot	sch'i'm (generic name for marmot)
	<i>Marmota caligata nivaria</i>	Hoary marmot	Same as above
Rodentia: Castoridae	<i>Castor canadensis leucodontus</i> Kuhl	Beaver	hnmulshench
Rodentia: Cricetidae	<i>Ondatra zibethicus osoyoosensis</i>	Muskrat	chelekhw
Carnivora: Canidae	<i>Canis latrans lestes Canis lupus</i>	Coyote Wolf	smiyiw hnt''lane'
	<i>Vulpes vulpes macroura</i>	Red fox	sqhwe(wqhwe(w
Carnivora: Ursidae	<i>Ursus americanus cinnamomum</i>	Black bear	hnłamqe'
	<i>Ursus arctos idahoensis</i>	Grizzly bear, brown bear	smaqhı'ch'n
Carnivora: Mustelidae	<i>Lutra canadensis nexa</i>	River otter	ltku
Artiodactyla: Cervidae	<i>Cervus elaphus nelsoni</i>	Elk, wapiti	spiłts'e'
	<i>Odocoileus hemionus hemionus</i>	Mule deer	St'unłts'e'

<i>Family</i>	<i>Latin name</i>	<i>Common name</i>	<i>Coeur d'Alene name</i>
Artiodactyla: Antilocapridae	<i>Odocoileus virginianus ochrourus</i>	White-tailed deer	w <sub>i</sub> shu's
	<i>Alces alces shirasi</i>	Moose	quasi'qs
	<i>Rangifer tarandus montanus</i>	Caribou	ul syukhm <sub>u</sub> smu 'lmkw he ts'i'
	<i>Antilocapra americana americana</i>	Pronghorn, antelope	st(in
	<i>Oreamnos americanus missoulae</i>	Mountain goat	Not Available
	<i>Ovis canadensis canadensis</i>	Bighorn sheep, mountain sheep	Not Available
	<i>Bison bison bison</i> (Linnaeus)	Bison, buffalo	q'wdq'wed

### **Fish**

<i>Family</i>	<i>Latin name</i>	<i>Common name</i>	<i>Coeur d'Alene name</i>
Acipenseridae	<i>Acipenser transmontanus</i> Richardson	White sturgeon	hnqha'qha'mn
Salmonidae	<i>Prospium williamsoni</i> (Girard)	Mountain whitefish	mimnu <sub>t</sub>
	<i>Oncorhyncus clarki lewisii</i> Richardson	Westslope cutthroat trout	p't'aswel (generic name for trout)
	<i>Oncorhyncus gairdneri</i> Richardson	Steelhead salmon (Spokane river)	sm <sub>f</sub> ich (generic name for salmon)
	<i>Salvelinus malma</i> (Walbaum)	Bull trout	snp'arq'qn
	<i>Oncorhynchus tshawytscha</i> (Walbaum)	Chinook salmon (Hangman Creek)	sm <sub>f</sub> ich
Cyprinidae	<i>Ptychocheilus oregonensis</i> (Richardson)	Northern squawfish	Not Available
Catostomidae	<i>Catostomus catostomus</i> (Forster)	Longnose sucker	e <sub>l</sub> she'lecht (generic name for sucker)
	<i>Catostomus macrocheilus</i> (Girard)	Largescale sucker	Same as above
	<i>Catostomus columbianus</i> (Eigenmann and Eigenmann)	Bridgelip sucker	Same as above

## Non-Native Terrestrial, Wetland and Aquatic Plant Species found in Kootenai and Benewah Counties

(Source: Montana Department of Agriculture 1998)

• Indicates noxious weed classification in Idaho

<i>Common Name</i>	<i>Common Name</i>
absinth wormwood	common St. Johns wort
alsike clover	common tansy
annual bluegrass	common teasel
annual sowthistle	common velvetgrass
asparagus	common vetch
baby's breath	corn buttercup
ball mustard	corn chamomile
birdseye pearlwort	corn cockle
birdsfoot trefoil	corn speedwell
bittersweet nightshade	cornflower
black bindweed	costmary chrysanthemum
black medic	cowcockle
black mustard	creeping bellflower
bladder campion	creeping bentgrass
blue scorpion grass	creeping buttercup
blueweed	cultivated flax
buckhorn plantain	curly dock
bulbous bluegrass	cutleaf blackberry
bull thistle	cypress spurge
Canada bluegrass	• dalmatian toadflax
• Canada thistle	damesrocket
caragana	dandelion
catnip	deptford pink
chickweed	• diffuse knapweed
chicory	downy brome
clustered bellflower	dwarf mallow
common bugloss	eurasian watermilfoil
common burdock	European mountain ash
common caraway	everlasting peavine
common cornsalad	feverfew
common groundsel	• field bindweed
common hemp nettle	field filago
common lambsquarters	field pennycress
common mullein	field pepperweed
common purslane	flixweed
common sage	fowl bluegrass
common salsify	fragrant waterlily
common speedwell	germander speedwell



<i>Common Name</i>	<i>Common Name</i>
green foxtail	pineapple weed
ground ivy	prickly lettuce
hairy chess	prickly Russian thistle
hairy nightshade	• purple loosestrife
hairy vetch	quackgrass
hedge mustard	rabbitfoot clover
henbit	rabbitfoot polypogon
Himalayan balsam	rattlesnake brome
hop clover	red catchfly
hybrid salsify	red clover
hyssopleaf tickseed	red fescue
Indian mustard	red sandspurry
interrupted apera	red seeded dandelion
Italian ryegrass	red sorrel
Japanese brome	redstem filaree
Japanese knotweed	reed canarygrass
Jerusalem oak goosefoot	ripgut brome
Kentucky bluegrass	• rush skeletonweed
knawel	• Russian knapweed
ladysthumb	Russian olive
large crabgrass	ryebrome
large hop clover	salad burnet
• leafy spurge	scentless chamomile
little starwort	• Scotch broom
low cudweed	• Scotch thistle
mahaleb cherry	shepherd's purse
marshpepper smartweed	small bugloss
matrimonyvine	small hop clover
mayweed chamomile	smallflower geranium
meadow fowltail	smooth crabgrass
• meadow hawkweed	smooth hawksbeard
Mediterranean barley	soft brome
moth mullein	sparrow vetch
mouse ear cress	spearmint
mouseear chickweed	spiny sowthistle
nightflowering catchfly	spotted cats ear
• orange hawkweed	• spotted knapweed
orchardgrass	spring whitlowgrass
pale smartweed	sticky chickweed
perennial honesty	sulfur cinquefoil
perennial ryegrass	sweet cherry
• perennial sowthistle	sweetbriar rose
petty spurge	tall buttercup

<i>Common Name</i>	<i>Common Name</i>
tall fescue	white clover
tall oatgrass	white horehound
Tall tumblemustard	white poplar
thymeleaf sandwort	white sweetclover
thymeleaf speedwell	white willow
timothy	wild mustard
tower mustard	wild proso millet
true forget me not	yellow chamomile
umbrella spurry	yellow rocket
ventenata	• yellow starthistle
water speedwell	yellow sweetclover
western salsify	• yellow toadflax
white bryony	yellow-devil hawkweed
white campion	

# Acronyms

ARPA	Archeological Resources Protection Act
ATSDR	Agency for Toxic Substances and Disease Registry
BA	Biological Assessment
BIA	Bureau of Indian Affairs
BIAM	Bureau of Indian Affairs Manual
BMP	Best Management Practices
BO	Biological Opinion
BP	Before Present
CAA	Clean Air Act
CAC	Citizen Advisory Committee
CDA	Coeur d'Alene
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CWA	Clean Water Act
DFC	Desired Future Conditions
DM	Departmental Manual
DOI	Department of Interior
DPEIS	Draft Programmatic Environmental Impact Statement
EAP	Environmental Action Plan
EHS	Environmental Health Specialist
EIS	Environmental Impact Statement
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act

EXTOXNET	Extension Toxicology Network
FEMA	Federal Emergency Management Agency
FERC	Federal Energy Regulatory Commission
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FPEIS	Final Programmatic Environmental Impact Statement
GIS	Geographic Information System
GUP	General Use Pesticides
HEL	Highly Erodible Soils
HUD	Housing and Urban Development
ICBEMP	Interior Columbia Basin Ecosystem Management Project
ICHHP	Intertribal Council on Hanford Health Projects
ID	Idaho
IDT	Interdisciplinary Team
IDWR	Idaho Department of Water Resources
IRIS	Integrated Risk Information System
IRMP	Integrated Resource Management Plan
ITEP	Institute for Tribal Environmental Professionals
KEC	Kootenai Electric Cooperative
LMA	Land Management Areas
LMR	Land Management Recommendations
LUSTs	Leaking Underground Storage Tanks
MBF	1000 board feet (lumber measurement)
MMBF	1 million board feet
MSDS	Material Safety Data Sheet
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOAA	National Oceanographic and Atmospheric Administration
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory

PEIS	Programmatic Environmental Impact Statement
PM	Particulate Matter
ROD	Record Of Decision
RUP	Restricted Use Pesticides
SCS	Soil Conservation Service
TCPs	Traditional Cultural Properties
TES	Threatened and Endangered Species
TMDLs	Total Maximum Daily Loads
TPPC	Tribal Pesticide Program Council
TSS	Total Suspended Sediment
USDA	United States Department of Agriculture
USDI	United States Department of Interior
USEPA	US Environmental Protection Agency
USFS	United States Forest Service
USFWS -	United States Fish and Wildlife Service
USTs	Underground Storage Tank
VOCs	Volatile Organic Compounds
WWP	Washington Water Power (now Avista Corporation)





# GLOSSARY

Sources for this glossary include: Federal regulations, Forest Ecosystem Management: An Ecological, Economic, and Social Assessment; Upper Columbia River Basin DEIS; Region 4 Desk Guide; Resource Planning Act Program Glossary 1995, Pacfish and Infish EAs, USDA Forest Service and BLM Hydrologic Analysis, American Fisheries Society Glossary, Soil Hydrologic Reconnaissance Reports, Coeur d'Alene Tribe Environmental Action Plan, USFWS Bull Trout Recovery Plans, Webster's Dictionary and internet sources.

- 303(d) list** A list of stream segments for a given region that do not meet water quality standards. It is named for the section of the Clean Water Act requiring the list.
- adfluvial fish** Fish that migrate between lake and river systems; such as landlocked kokanee salmon or some bull trout.
- adverse effect** For the IRMP, "adverse effect" is used in the context of the Endangered Species Act relative to effects on Threatened, Endangered, Proposed, and Candidate (TEPC) species. Definitions are from the Final Endangered Species Consultation Handbook (USDI FWS and US Dept of Commerce NMFS 1998). They include both "likely to adversely effect" and "not likely to adversely effect". Both of these definitions are needed to clearly understand the intent of the phrase "adverse effect" when applied to Reservation wide and management area direction involving TEPC species. The definition of "take" is also included below to help clarify intent.
- *Is likely to adversely effect* - the appropriate finding in a biological assessment (or conclusion during informal consultation) if any adverse effect to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial (see definition of "is not likely to adversely effect"). In the event the overall effect of the proposed action is beneficial to the listed species, but is also likely to cause some adverse effects, then the proposed action "is likely to adversely effect" the

listed species. If incidental take is anticipated to occur as a result of the proposed action, an “is likely to adversely effect” determination should be made. An “is likely to adversely effect” determination requires the initiation of formal Section 7 consultation.

- *Is not likely to adversely effect* - the appropriate conclusion when effects on listed species are expected to be discountable, insignificant, or completely beneficial. Beneficial effects are contemporaneous positive effects without any adverse effects to the species. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those that are extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully detect, measure, or evaluate insignificant effects; or (2) expect discountable effects to occur.

- *Take* - to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct [ESA §3(19)]. Harm is further defined by FWS to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing behavioral patterns such as breeding, feeding, or sheltering. Harass is defined by FWS as actions that create the likelihood of injury to listed species to such an extent as to significantly disrupt normal behavior patterns which include, but are not limited to, breeding, feeding or sheltering (50 CFR § 17.3).

**Affect or Affecting**

Will or may have an effect on.

**air pollutant**

Any substance in air that could, if in high enough concentration, harm humans, animals, vegetation, or material. Air pollutants may include almost any natural or artificial matter capable of being airborne in the form of solid particles, liquid droplets, gases, or a combination of these.

**air quality**

The composition of air with respect to quantities of pollution therein; often used in connection with “standards” of maximum acceptable pollutant concentrations.

**alternative**

In an Environmental Impact Statement (EIS), one of a number of possible options for responding to the purpose and need for action.

**amenity**

Resource use, object, feature, quality, or experience that is pleas-

	ing to the mind or senses; typically refers to resources for which monetary values are not or cannot be readily established, such as scenery or wilderness.
<b>anadromous fish</b>	Fish that hatch and rear in fresh water, migrate to the ocean, mature there, and return to fresh water to reproduce (e.g. salmon and steelhead).
<b>bankfull</b>	The elevation on a stream bank where the stream begins to flow onto a flood plain.
<b>beneficial impact</b>	Beneficial effects are positive effects to resources, or to social or economic conditions. Specific to ESA species, beneficial effects are contemporaneous positive effects without any adverse effects to the species. The appropriate conclusion when effects on listed species are expected to be beneficial would be: <i>“Is not likely to adversely effect”</i> .
<b>beneficial use</b>	Any of the various uses which may be made of a water body, including, but not limited to cultural use, agricultural water supply, industrial water supply, domestic water supply, , primary contact recreational use, secondary contact recreational use salmonid spawning, overwintering, emergence, and rearing, cold water biota, and warm water biota.
<b>Best Management Practices (BMPs)</b>	Practices determined by Federal, Tribal, or State agencies to be the most effective and practical means of protecting resources by minimizing pollution, soil erosion, or habitat destruction.
<b>big game</b>	Large wild animals that are hunted for sport and food. Big game animals include deer, elk, and moose.
<b>biological diversity (or biodiversity)</b>	The variety of life. Biological diversity includes all living organisms, the genetic differences among them, and the communities and ecosystems in which they occur.
<b>biota</b>	The living things of an area, including plants and animals.
<b>broadcast burning</b>	Burning forest fuels as they are, with no piling or windrowing.
<b>browse</b>	Woody plant twigs, leaves, and shoots that animals eat.
<b>composition (species)</b>	The species that make up a plant or animal community, and their relative abundance.

<b>Comprehensive Plan (Tribal)</b>	The Tribal Comprehensive Plan is the blueprint for the implementation of Tribal policy and goals.
<b>connectivity</b>	<p>The degree to which habitat shape and distribution allows organisms and natural processes to move across the landscape. High levels of connectivity can result from unbroken stretches of habitat or from hospitable travelways that connect habitat patches. Connectivity is the opposite of fragmentation.</p> <p>Sites in a landscape are “connected” if there are patterns or processes to link them in some way. These links arise either from static patterns (e.g., landforms, soil distributions, contiguous forest cover) or from dynamic processes (e.g., dispersal, fire). A particular landscape may have radically different degrees of connectivity with respect to different processes. Connectivity usually involves corridors and networks and describes how patches are connected in the landscape.</p>
<b>corridor (landscape)</b>	Landscape portion that connects similar patches of habitat through an area with different habitat. For example, streamside vegetation through a landscape of row crop may create a corridor that connects forested areas.
<b>cover</b>	Referring to vegetation and debris used by animals to dwell and hide. It may also refer to the arrangement of vegetation, debris, logs, or rocks which occur on the ground..
<b>critical habitat</b>	Specific areas, within a geographical area occupied by a species of concern, and/or threatened or endangered species, on which are found physical or biological features essential to conservation of the species. These areas may require special management consideration or protection, and can also include specific areas outside the occupied area that are deemed essential for conservation.
<b>cultural resources</b>	Cultural resources are those resources important to the lifeways of past and present people. Many Schitsu'umsh cultural resources are still used today, bridging the gap between past and present lifeways and maintaining cultural integrity. Archaeological resources, a subset of cultural resources, include sites, structures, and artifacts used by past residents and travelers. Cultural resources on the Reservation, as within the entire aboriginal territory, are diverse and include properties such as archaeological sites; pictographs and petroglyphs; artifacts; burial sites, associ-

	ated and unassociated funerary objects and cultural patrimony; other sacred sites; hunting, gathering, and fishing areas; and cultural activity areas.
<b>cumulative effects</b>	Impacts on the environment that result from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions. Significant cumulative effects can result from individually minor actions taking place over a period of time.
<b>degradation</b>	To degrade, or the act of degrading. Refer to the definition of “degrade” in this glossary.
<b>degrade</b>	To degrade is to measurably change a resource condition for the worse within an identified scale and time frame.
<b>demographic</b>	Related to the vital statistics of human populations (size, density, growth, distribution, etc.).
<b>denning habitat or sites</b>	Habitat and locations used by mammals during reproduction and rearing of their young, when the young are highly dependent on adults for survival.
<b>Desired Future Condition (DFC)</b>	A portrayal of the land, resource, or social and economic conditions that are expected in 20–100 years if management goals and objectives are achieved. A vision of the intended long-term conditions of the land.
<b>developed recreation</b>	Recreation that requires facilities that in turn result in concentrated use of an area; for example, a campground or ski resort.
<b>dispersed recreation</b>	Recreation that does not occur in a developed recreation setting, such as hunting, scenic driving, or backpacking.
<b>disturbance</b>	Any event, such as wildfire or logging, that alters the structure, composition, or function of an ecosystem.
<b>ecological function</b>	The activity or role performed by an organism or element in relation to other organisms, elements, or to the environment.
<b>ecological integrity</b>	In general, ecological integrity refers to the degree to which the elements of biodiversity and the processes that link them together and sustain the ecosystems are complete and capable of performing desired functions.
<b>ecological processes</b>	The actions or events that link organisms (including humans) and their environment such as disturbance, successional development,

	nutrient cycling, productivity, and decay.
<b>ecosystem</b>	A naturally occurring, self-maintained system of living organisms and their environment.
<b>effects</b>	“Effects” and “Impacts” are synonymous. They include direct, which are caused by the action and occur at the same time and place, and indirect, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects/impacts may include growth inducing effects/impacts and other effects/impacts related to induced changes in the pattern of land use, population density or growth rate, and related effects/impacts on air and water and other natural systems, including ecosystems. Effects/impacts include ecological (such as the effects/impacts on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects/impacts may also include those resulting from actions which may have both beneficial and detrimental effects/impacts, even if on balance the agency believes that the effect will be beneficial.
<b>encroachments</b>	Legal: Any dock, pier, float home, boat garage, jetty, float, piling, breakwater, boat ramp, channel, basin, land fill, fill, sea wall or other structure on, in or above the submerged lands or waters of the Coeur d’Alene Reservation. General: Increase or ingrowth of one land use or land cover upon another, such as increasing agricultural use of floodplains.
<b>endangered species</b>	An animal or plant species that has been given federal protection status because it is in danger of extinction throughout all or a significant portion of its natural range. Species are designated by the U.S. Fish and Wildlife Service or National Marine Fisheries Service,
<b>Environmental Impact Statement (EIS)</b>	This is a document required by Section 102 (2) (C) of the National Environmental Policy Act. It is a detailed report required by all agencies of the federal government when their proposals for legislation or other major Federal actions will significantly affect the quality of the human environment. It must include the environmental impact of the proposed action, any adverse environmental effects which cannot be avoided should the proposal be



implemented, alternatives to the proposed action, the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and, any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented.

<b>ephemeral stream</b>	A stream or portion of a stream that in a normal year only has flow during, and shortly after, precipitation events. Ephemeral stream beds are located above seasonal water tables and ground-water is not a source of water for ephemeral streams. Unlike intermittent streams, ephemeral streams usually do not have well-defined stream channels or banks, and ephemeral stream channels are always above the water table.
<b>exotic species</b>	Animals or plants that have been introduced from a distant place and are non-native to the area of introduction.
<b>facility</b>	A structure needed to support the management, protection, and utilization of the Reservation including buildings, utility systems, roads, and other constructed features.
<b>Fire Management Plans</b>	A strategic plan that defines a program to manage wildland and prescribed fires and documents the Fire Management Program described in the approved Tribal Forest Plan.
<b>fire regimes</b>	The characteristics of fire in a given ecosystem, including factors such as frequency, intensity, severity, and patch size.
<b>fire suppression</b>	Efforts made to extinguish wildfires or limit their extent. Also, some landuse activities may result in unintentional fire suppression, such as fragmentation of forest habitat by agriculture.
<b>fire use</b>	The combination of wildland fire use and prescribed fire application to meet resource objectives.
<b>fluvial (fish)</b>	Fish that migrate, but only within a river system. For example, bull trout that migrate into larger river systems are fluvial.
<b>forage</b>	Plant materials (usually grasses, forbs, and shrubs) that are available for animal consumption.
<b>forbs</b>	Broadleaf ground vegetation with little or no woody material.
<b>fragmentation</b>	The splitting or isolation of habitat into smaller patches because

of human actions. Habitat can be fragmented by activities such as timber harvest, road construction, and urbanization.

**Geographic Information System (GIS)**

A computer system that stores and uses spatial (mappable) data that can be used for map production, landcover analysis, etc.

**Geomorphic**

Pertaining to forms found on the landscape, (e.g. hills, buttes, and river valleys are geomorphic features).

**goal**

As to IRMP management direction, a goal is a concise statement that helps describe a desired condition, or how to achieve that condition.

**goods and services**

The tangible and intangible values or products, expressed in market and non-market terms.

**habitat**

A place that provides seasonal or year-round food, water, shelter, and other environmental conditions for an organism, community, or population of plants or animals.

**historic properties**

Historic Properties are sites, structures, artifacts or general locations relevant to one or more significant elements of the past. These properties range from specific sites or entire landscapes and include all artifacts, records, and material remains related to such properties. Historic Properties include but are not limited to those properties included on or eligible for inclusion on the National Register as well as properties important to the Coeur d'Alene Tribe without consideration of National Register Criteria.

**hydrologic**

Pertaining to the properties, distribution, and effects of water. "Hydrology" is the study of water; including its occurrence, circulation, distribution, properties, and reactions with the environment.

**Impacts**

"Impacts" and "Effects" are synonymous. They Include direct, which are caused by the action and occur at the same time and place, and indirect, which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect impacts/effects may include growth inducing impacts/effects and other impacts/effects related to induced changes in the pattern of land use, population density or growth rate, and related impacts/effects on air and water and other natural systems, including ecosystems. Impacts/effects include ecological (such as the impacts/effects on natural resources and

	on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Impacts/effects may also include those resulting from actions which may have both beneficial and detrimental impacts/effects, even if on balance the agency believes that the effect will be beneficial.
<b>indicator</b>	In effects analysis, a device or a way for measuring effects from management alternatives on a particular resource or issue.
<b>infrastructure</b>	The facilities, utilities, and transportation systems needed to meet public and administrative needs.
<b>intermittent stream</b>	A stream or portion of a stream that flows during certain periods of the year, when groundwater provides the main water source. Runoff from rainfall may be a supplemental source of water for stream flow. In a normal year Intermittent streams dry up (generally in summer). Unlike ephemeral streams, intermittent streams usually have well-defined stream channels and banks, and channels may be below the seasonal water table.
<b>key watershed</b>	Evans, Alder, Benewah, Lake and Hangman Creeks.
<b>k'wne' chstqhessiple' hnhkhwkhwlstutnet (summarized as stqhesiple')</b>	The future course of our renewal
<b>landslide</b>	Any downslope mass movement of soil, rock, or debris.
<b>large woody debris</b>	Pieces of woody material having a diameter of at least three inches and a length greater than six feet (also referred to as coarse woody debris, or CWD).
<b>littoral zone</b>	The shallow near-shore zone of lakes that serves as the interface between the land and open water and is dominated by rooted emergent, floating and submersed vascular plants, and their attached flora and fauna.
<b>maintain</b>	<p>This term has different technical meanings for various resource topics:</p> <p>For biological and physical resources, “maintain” means to produce no change in the existing conditions of a resource relative to their condition status; i.e. properly functioning, function-</p>

ing at risk, or not functioning properly. Conditions that are “maintained” are neither restored or degraded, but remain essentially the same. The term “maintain” can apply to any condition or condition indicator at any scale of size or time, but those scales need to be identified.

Specific to the Endangered Species Act, this term is appropriate for actions that have insignificant or discountable effects to existing resource conditions, whether they are in a degraded or properly functioning condition. When conditions are “maintained”, the appropriate effects determination would either be “No effect” or “*Is not likely to adversely effect*”. If insignificant or discountable effects are expected, the appropriate determination would be: “*Is not likely to adversely effect*”.

For landuses, “maintain” means to continue a current or existing practice, activity, management strategy, resource condition, or level of use.

For resource inventories, databases, plans, maps, or other documents related to all resources, “maintain” means to periodically update these items to reflect current conditions and/or status.

<b>management action</b>	Any activity that impacts lands, waters or resources.
<b>management area</b>	A land area with similar management goals and a common prescription, as described in the IRMP.
<b>measurable benefits</b>	A measurable benefit is one that can be meaningfully detected or documented using accepted analysis or monitoring methods.
<b>mesic</b>	Moderate moisture conditions. This can refer to a habitat characterized by, or a species adapted to moderate moisture conditions rather than wet (hydric) or dry (xeric) conditions.
<b>mitigate</b>	To avoid, minimize, reduce, eliminate, rectify, or compensate for impacts or degradation that might otherwise result from management actions.
<b>mitigation measures</b>	Modifications of actions that: (1) avoid impacts by not taking a certain action or parts of an action in a given area of concern; (2) minimize impacts by limiting the degree or magnitude of the action and its implementation; (3) rectify impacts by repairing, rehabilitating, or restoring the affected environment; (4) reduce or eliminate impacts over time by preservation and maintenance operations during the life of the action; or (5) compensate for impacts by replacing or providing substitute resources or environments.

<b>monitoring</b>	The process of collecting information to evaluate if objectives and anticipated results of a management plan are being reached, or if implementation is proceeding as planned.
<b>National Register of Historic Places (National Register, NRHP)</b>	A national list of cultural resources deemed worthy of preservation, including buildings and objects that are significant in American history, architecture, archeology, engineering, and culture. The list was authorized under the National Historic Preservation Act of 1966.
<b>native species</b>	Animals or plants that originated in the area in which they live. Species that normally live and thrive in a particular ecosystem.
<b>no action (alternative)</b>	The most likely condition expected to exist if current management practices continue unchanged or if no new action is undertaken. The analysis of this alternative is required for federal actions under NEPA.
<b>noxious weed</b>	A plant species that causes negative ecological and economic impacts to native habitats, agricultural and other lands.
<b>old growth</b>	Old growth is a set of forested vegetation that reflect late-successional conditions, including stand structure, stand size, species composition, snags, downed logs, and decadence. Minimum amounts of large trees, large snags, and coarse wood are typically required to meet old growth definitions. Old growth definitions generally vary by forest type. Also, across a given forest type's geographical range , considerable variability can exist for specific ecological attributes that characterize old growth conditions.
<b>opening (created)</b>	Related to vegetation management, openings are created only by planned, even-aged, regeneration timber harvesting. Only those even-aged timber harvest practices that reduce stocking levels to less than 10 percent create openings. Canopy closure will normally be used to determine stocking levels. Residual stands of mature trees will generally have less than 10 percent stocking when fewer than 10 to 15 trees per acre remain following harvest. Even-aged harvest practices that may result in the creation of openings include clear-cutting, reserve tree clear-cutting, seed tree cutting, shelterwood seed cutting, and overstory removal.
<b>patch</b>	An area on the landscape consisting of a single habitat type that is surrounded by a different habitat type. For example, a pasture

	surrounded by forest would constitute a habitat patch of pasture.
<b>Pelagic zone</b>	The deep, open water zone of lakes.
<b>perennial stream</b>	A stream that typically maintains year-round surface flow, except possibly during extreme periods of drought. A perennial stream receives its water from springs or other permanent sources, and the water table often stands at a higher level than the floor of the stream.
<b>phenotype</b>	The outward, physical manifestation of the organism.
<b>population</b>	The people, wildlife, fish, or plants that inhabit and reproduce in a specific area. Also, a group of individuals of the same species occupying a defined locality during a given time that exhibit reproductive continuity from generation to generation.
<b>prescribed fire</b>	Any fire ignited intentionally to meet specific management objectives.
<b>priority watershed</b>	A watershed or drainage system deemed strategically important for specific or overall cultural or natural resource preservation.
<b>proposed action</b>	A proposal made by the Tribe or other agency to authorize, recommend, or implement an action to meet a specific purpose and need.
<b>public road</b>	Any road or street under the jurisdiction of, and maintained by, a public authority and open to public travel [23 U.S.C. 101(a)].
<b>rear</b>	To feed and grow in a natural or artificial environment.
<b>reclamation</b>	Actions that restore natural or naturally functioning conditions following disturbance or destruction of habitat or organisms. Reclamation can include removing facilities, equipment, and materials; recontouring disturbed areas towards original topography; neutralizing or removing toxic materials; salvage and replacement of topsoil; and revegetation.
<b>resident fish</b>	Fish that are non-migratory and spend their entire life cycle within a given freshwater area.
<b>restoration</b>	Management actions or decisions taken to recreate the desired conditions of habitats, natural communities, ecosystems, resources, or watersheds. Restoration may be active, or may involve passive approaches, wherein natural processes are expected to



	accomplish restoration objectives.
<b>restore</b>	For biological and physical resources, restore means to repair, re-establish, or recover ecosystem functions, processes, or components so that they are moving toward or within their range of desired conditions.
<b>riparian areas or zones</b>	Terrestrial areas where the vegetation and climate conditions are strongly impacted by streams or rivers; transition zones between aquatic habitats and upland habitats. Riparian areas tend to have soils and hydrology that differ from nearby non-riparian areas.
<b>road</b>	A motor vehicle travelway over 50 inches wide, unless designated and managed as a trail.
<b>roadless area</b>	A large area of land that is unbroken by roads. The minimum area size may be designated by an agency.
<b>rural</b>	Areas where human populations are less dense and economies often include agriculture or resource utilization. When not farmed, vegetative cover is often natural and untended. Natural landscapes or landforms tend to dominate views. Specific definitions of rural may include human population densities, or proximity to urban areas.
<b>scale</b>	Geographic extent; for example, watershed, regional, sub-regional, sub-watershed, or landscape scale.
<b>scoping</b>	The process used to determine, through public involvement, the range of issues that the IRMP and other NEPA planning processes should address.
<b>sedimentation</b>	The action or process of depositing sediments. Stream sedimentation occurs when water velocity cannot transport the bed load and suspended matter is deposited by gravity along the streambed.
<b>Shannon-Weiner Index</b>	A computation performed upon plant or animal population numbers to determine and compare species diversity between two or more sites.
<b>silt loam</b>	A texture of soil defined by the percentage of sand, silt, and clay. Silt loam soils are generally considered to be favorable for plant growth and agriculture. Eleven other soil textures (such as clay loams and sandy clays) are recognized by the NRCS.

<b>silviculture</b>	The care and tending of stands of trees to meet specific objectives.
<b>snag</b>	A standing dead tree.
<b>soil erosion</b>	Soil erosion is the detachment and transport of soil particles or aggregates by wind, water, or gravity. Management practices may increase soil erosion when they remove ground cover and detach soil particles.
<b>soil productivity</b>	Soil productivity includes the inherent capacity of a soil to support the growth of specified plants, plant communities, or a sequence of plant communities. Soil productivity may be expressed in terms of plant volume or weight/unit area/year, percent plant cover, or other measures of biomass accumulation.
<b>spawning</b>	The act of fish reproduction. The mixing of the sperm of a male fish and the eggs of a female fish.
<b>strongholds</b>	For fish, strongholds are watersheds that: (1) include all major life-history forms (resident, fluvial, adfluvial) that historically occurred there; (2) have numbers that are stable or increasing, with local populations at least half of their historical size; and (3) have populations with at least 5,000 individuals or 500 adults.
<b>structure</b>	The size and arrangement, both vertically and horizontally, of vegetation.
<b>subbasin</b>	A drainage basin (river basin) that forms one branch of a larger drainage basin network.
<b>substrate</b>	The composition of a streambed, including mineral and organic materials.
<b>subwatershed</b>	A watershed that forms a portion of the area of a larger watershed.
<b>succession</b>	The replacement of one plant community by another.
<b>suitability</b>	The degree to which an activity or land condition goal is compatible with realities of the natural environment, the economy, and cultural values.
<b>Sustainable</b>	Things that are done today will not jeopardize the health and well-being of future generations.

<b>temporary road</b>	Roads established for a single project that are expected to be unused and decommissioned after the project is finished (e.g. logging operation).
<b>Threatened species</b>	A plant or animal species given federal protection because it is likely to become endangered throughout all or a specific portion of its range within the foreseeable future. It is designated under the Endangered Species Act by the U.S. Fish and Wildlife Service or National Marine Fisheries Service.
<b>Total Maximum Daily Load (TMDL)</b>	The maximum amount of a pollutant that a waterbody can receive and still meet water quality standards. The TMDL determination takes into account point source pollutants, non-point source pollutants, usages of the waterbody, and seasonal variation in water quality.
<b>trail</b>	A pathway for purposes of travel by foot, bicycle, stock, ski, snowshoe, or trail vehicles.
<b>travel corridor</b>	A Landscape portion that connects similar patches of habitat through an area with different habitat and over which or through which animal migration or relocation are possible. For an area to serve as a travel corridor, it must contain some degree of favorable cover, food, or location.
<b>unstable areas</b>	Land areas that have a higher probability of erosion, landslides, and channel adjustment disturbances during climatic or physical events such as major storms or fires.
<b>urban</b>	Areas where human population densities are higher and economies may include a sizable portion of income derived from jobs that are not agriculture or resource extraction based. Vegetative cover is often exotic and manicured. Buildings and human activity tend to dominate sights and sounds. Specific definitions of urban may include human population or building densities.
<b>utility corridor</b>	A linear strip of land defined for the present or future location of utility facilities within its boundaries.
<b>viable population</b>	A population that is regarded as having the numbers and distribution of reproductive individuals to ensure that it will continue to exist over time and will be well distributed within a given area.
<b>watershed</b>	Region or area drained by a specific river, stream, or other surface

channel. A smaller watershed can be wholly contained within a larger one, as watersheds are hierarchical in structure.

**wetlands**

Land areas that are wet at least for part of the year and are characterized by hydrophytic vegetation and hydric soils. Examples of wetlands include swamps, marshes, and some floodplain forests.

**Wilderness Areas**

Areas without developed and maintained roads, that are substantially natural. Congress has designated these areas as part of the National Wilderness Preservation System.

**wildfire**

An unplanned or unwanted wildland fire.

**wildland fire**

Any fire that is not a desired prescribed fire and is primarily fueled by wild or semi-wild vegetation on the landscape.

**wildland urban interface**

The line, area, or zone where structures and other human developments meet or intermingle with wildland or vegetative fuel.

**winter range**

An area or areas where animals (usually ungulates such as elk, deer, bighorn sheep) congregate and feed in winter due to favorable conditions. Conditions are often influenced by snow depth, temperature, and the availability of forage and cover.

**xeric**

A habitat characterized by dry conditions, or a species adapted to dry conditions.

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